**UNITED STATES INTERNATIONAL TRADE COMMISSION**
**Washington, D.C.**

| In the Matter of<br><br>CERTAIN FOREIGN-FABRICATED SEMICONDUCTOR DEVICES, PRODUCTS CONTAINING THE SAME, AND COMPONENTS THEREOF | Investigation No. 337-TA-____ |
|---|---|

# VERIFIED COMPLAINT UNDER SECTION 337 OF THE TARIFF ACT OF 1930, AS AMENDED

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TSMC EXHIBIT 1151
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IPR2025-00864

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## TABLE OF CONTENTS


**Page**

I. INTRODUCTION ..... 1

II. THE PARTIES ..... 4

A. The Complainants ..... 4

B. The Proposed Respondents ..... 6

1. TSMC ..... 6
2. Apple ..... 8
3. Broadcom ..... 9
4. Lenovo ..... 10
5. OnePlus ..... 12
6. Qualcomm ..... 13

III. THE PATENTS ..... 14

A. The Asserted ’847 Patent ..... 15

1. Ownership and Asserted Claims of the ’847 Patent ..... 15
2. Foreign Counterparts to the ’847 Patent ..... 16
3. Non-Technical Description of the ’847 Patent ..... 16

B. The Asserted ’473 Patent ..... 17

1. Ownership and Asserted Claims of the ’473 Patent ..... 17
2. Foreign Counterparts to the ’473 Patent ..... 18
3. Non-Technical Description of the ’473 Patent ..... 18

C. The Asserted ’747 Patent ..... 19

1. Ownership and Asserted Claims of the ’747 Patent ..... 19
2. Foreign Counterparts to the ’747 Patent ..... 20
3. Non-Technical Description of the ’747 Patent ..... 20

D. The Asserted ’292 Patent ..... 21

1. Ownership and Asserted Claims of the ’292 Patent ..... 21
2. Foreign Counterparts to the ’292 Patent ..... 22
3. Non-Technical Description of the ’292 Patent ..... 22

E. The Asserted ’880 Patent ..... 24

1. Ownership and Asserted Claims of the ’880 Patent ..... 24
2. Foreign Counterparts to the ’880 Patent ..... 24
3. Non-Technical Description of the ’880 Patent ..... 25

IV. UNFAIR ACTS OF PROPOSED RESPONDENTS – PATENT INFRINGEMENT AND IMPORTATION ..... 26

A. TSMC ..... 27

1. Representative Involved Articles ..... 27

2. Infringement of the ’847 Patent ..... 29
3. Infringement of the ’473 Patent ..... 29
4. Infringement of the ’747 Patent ..... 30
5. Infringement of the ’292 Patent ..... 30
6. Infringement of the ’880 Patent ..... 30
7. Specific Instance of Sale and Importation ..... 30

B. Apple ..... 32

1. Representative Involved Articles ..... 32
2. Infringement of the ’847 Patent ..... 35
3. Infringement of the ’473 Patent ..... 35
4. Infringement of the ’747 Patent ..... 35
5. Infringement of the ’292 Patent ..... 35
6. Infringement of the ’880 Patent ..... 36
7. Specific Instance of Sale and Importation ..... 36

C. Broadcom ..... 37

1. Representative Involved Articles ..... 37
2. Infringement of the ’847 Patent ..... 40
3. Infringement of the ’473 Patent ..... 40
4. Infringement of the ’292 Patent ..... 40
5. Specific Instance of Sale and Importation ..... 41

D. Lenovo ..... 42

1. Representative Involved Articles ..... 42
2. Infringement of the ’847 Patent ..... 45
3. Infringement of the ’473 Patent ..... 45
4. Infringement of the ’292 Patent ..... 45
5. Specific Instance of Sale and Importation ..... 45

E. OnePlus ..... 47

1. Representative Involved Articles ..... 47
2. Infringement of the ’847 Patent ..... 49
3. Infringement of the ’473 Patent ..... 49
4. Infringement of the ’747 Patent ..... 50
5. Infringement of the ’292 Patent ..... 50
6. Infringement of the ’880 Patent ..... 50
7. Specific Instance of Sale and Importation ..... 50

F. Qualcomm ..... 52

1. Representative Involved Articles ..... 52
2. Infringement of the ’847 Patent ..... 55
3. Infringement of the ’473 Patent ..... 55
4. Infringement of the ’747 Patent ..... 55
5. Infringement of the ’292 Patent ..... 55
6. Infringement of the ’880 Patent ..... 55
7. Specific Instance of Sale and Importation ..... 56

V. THE HARMONIZED TARIFF SCHEDULE INFORMATION ..... 59
VI. RELATED LITIGATION ..... 60
VII. DOMESTIC INDUSTRY RELATING TO THE ASSERTED PATENTS ..... 60
A. Intel Corporation ..... 60
B. Intel's U.S. Investments ..... 63
C. Intel's Significant Investments in Plant and Equipment ..... 68
1. Square Footage of Buildings Owned ..... 68
2. Value of Land and Buildings ..... 69
3. Investments in Machinery and Equipment ..... 71
D. Intel's Significant Investments in Labor and/or Capital ..... 72
1. Number of Employees ..... 72
2. Marketing and G&A Expenses ..... 73
E. Intel's Substantial Investments in the Exploitation of the Asserted Patents ..... 73
F. Intel's Domestic Industry in the Process of Being Established ..... 74
G. DI Representative Articles ..... 76
VIII. REQUESTED REMEDIAL ORDERS ..... 77
A. Limited Exclusion Order ..... 77
B. Cease and Desist Order ..... 77
IX. RELIEF REQUESTED ..... 78

## EXHIBIT LIST

| Exhibit No. | Description | Designation |
|---|---|---|
| 1 | Certified Copy of U.S. Patent No. 7,745,847 | Public |
| 2 | Certified Copy of U.S. Patent No. 9,093,473 | Public |
| 3 | Certified Copy of U.S. Patent No. 9,147,747 | Public |
| 4 | Certified Copy of U.S. Patent No. 9,184,292 | Public |
| 5 | Certified Copy of U.S. Patent No. 9,953,880 | Public |
| 6 | Certified Assignment Records for U.S. Patent No. 7,745,847 | Public |
| 7 | Certified Assignment Records for U.S. Patent No. 9,093,473 | Public |
| 8 | Certified Assignment Records for U.S. Patent No. 9,147,747 | Public |
| 9 | Certified Assignment Records for U.S. Patent No. 9,184,292 | Public |
| 10 | Certified Assignment Records for U.S. Patent No. 9,953,880 | Public |
| 11 | Redacted Version of Patent Assignment and Transfer Agreement between UMC and Marlin Semiconductor | Public |
| 11C | Patent Assignment and Transfer Agreement between UMC and Marlin Semiconductor | Confidential |
| 12 | Redacted Version of Marlin Semiconductor Amended and Restated Exclusive Patent License Agreement between Marlin Semiconductor and Longitude | Public |
| 12C | Amended and Restated Exclusive Patent License Agreement between Marlin Semiconductor and Longitude | Confidential |
| 13 | Longitude Licensing Limited “About Us” | Public |
| 14 | United Microelectronics Corporation “Overview” | Public |
| 15 | Intel 2024 Form 10-K | Public |
| 16 | Intel 2023 Form 10-K | Public |
| 17 | Intel 2022 Form 10-K | Public |
| 18 | Redacted Version of U.S. Patent No. 7,745,847 Claim Chart for Intel Core Ultra 7 Processor / Semiconductor Wafer and Die | Public |
| 18C | U.S. Patent No. 7,745,847 Claim Chart for Intel Core Ultra 7 Processor / Semiconductor Wafer and Die | Confidential |
| 19 | Redacted Version of U.S. Patent No. 7,745,847 Claim Chart for Intel SRK02 Core i7-1165G7 Integrated Circuit / Wafer | Public |
| 19C | U.S. Patent No. 7,745,847 Claim Chart for Intel SRK02 Core i7-1165G7 Integrated Circuit / Wafer | Confidential |
| 20 | Redacted Version of U.S. Patent No. 9,093,473 Claim Chart for Intel Core Ultra 7 Processor / Semiconductor Wafer and Die | Public |
| 20C | U.S. Patent No. 9,093,473 Claim Chart for Intel Core Ultra 7 Processor / Semiconductor Wafer and Die | Confidential |
| 21 | Redacted Version of U.S. Patent No. 9,093,473 Claim Chart for Intel SRK02 Core i7-1165G7 Integrated Circuit / Wafer | Public |
| 21C | U.S. Patent No. 9,093,473 Claim Chart for Intel SRK02 Core i7-1165G7 Integrated Circuit / Wafer | Confidential |
| 22 | Redacted Version of U.S. Patent No. 9,147,747 Claim Chart for Intel Core Ultra 7 Processor / Semiconductor Wafer and Die | Public |

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| 22C | U.S. Patent No. 9,147,747 Claim Chart for Intel Core Ultra 7 Processor / Semiconductor Wafer and Die | Confidential |
| 23 | Redacted Version of U.S. Patent No. 9,147,747 Claim Chart for Intel SRK02 Core i7-1165G7 Integrated Circuit / Wafer | Public |
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| 24 | Redacted Version of U.S. Patent No. 9,184,292 Claim Chart for Intel Core Ultra 7 Processor / Semiconductor Wafer and Die | Public |
| 24C | U.S. Patent No. 9,184,292 Claim Chart for Intel Core Ultra 7 Processor / Semiconductor Wafer and Die | Confidential |
| 25 | Redacted Version of U.S. Patent No. 9,184,292 Claim Chart for Intel SRK02 Core i7-1165G7 Integrated Circuit / Wafer | Public |
| 25C | U.S. Patent No. 9,184,292 Claim Chart for Intel SRK02 Core i7-1165G7 Integrated Circuit / Wafer | Confidential |
| 26 | Redacted Version of U.S. Patent No. 9,953,880 Claim Chart for Intel Core Ultra 7 Processor / Semiconductor Wafer and Die | Public |
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| 27C | U.S. Patent No. 9,953,880 Claim Chart for Intel SRK02 Core i7-1165G7 Integrated Circuit / Wafer | Confidential |
| 28 | TSMC 2023 Annual Report | Public |
| 29 | Apple “iPhone” | Public |
| 30 | Apple “Apple Watch” | Public |
| 31 | Apple 2024 Form 10-K | Public |
| 32 | Broadcom 2024 Form 10-K | Public |
| 33 | TSMC “Sailing into the Future of the Semiconductor Industry” | Public |
| 34 | Serve the Home “Broadcom Tomahawk 5 at OCP Summit 2022” | Public |
| 35 | Serve the Home “Awesome Broadcom Co-Packaged Optics and Silicon Photonics OCP Summit 2022” | Public |
| 36 | Broadcom “Optical Interconnects for AI Components and Co-Packaged Optics (CPO)” | Public |
| 37 | Broadcom “Broadcom Delivers on AI Infrastructure Vision with Industry-Leading Solutions at 2024 OCP Global Summit” | Public |
| 38 | Motorola “Moto G Play Phone” | Public |
| 39 | Lenovo “Yoga Slim 7x Laptop” | Public |
| 40 | OnePlus “Buy OnePlus 13” | Public |
| 41 | OnePlus “Buy OnePlus Nord N30 5G” | Public |
| 42 | Qualcomm 2024 Form 10-K | Public |
| 43 | Qualcomm “Qualcomm Innovators Development Kit” | Public |
| 44 | Qualcomm “Company Information & History” | Public |
| 45 | Redacted Version of List of Licensed Entities | Public |

| Exhibit No. | Description | Designation |
|---|---|---|
| 45C | List of Licensed Entities | Confidential |
| 46 | Apple “iPhone 15 Pro - Tech Specs” | Public |
| 47 | TechInsights “Apple APL1V02 A17 Pro Processor TSMC 3nm FinFET Process Advanced CMOS Essentials” | Public |
| 48 | Apple “iPhone 13 - Tech Specs” | Public |
| 49 | TechInsights “Apple APL1W07 A15 Bionic Processor SoC TSMC N5P FinFET aCMOS Essentials” | Public |
| 50 | Apple “Apple Watch SE (2nd generation) - Tech Specs” | Public |
| 51 | Onsitego Blog “Apple Watch Series 8’s S8 Processor Uses Same CPU As S6 And S7” | Public |
| 52 | Redacted Version of Photographs of TSMC TMQG36 | Public |
| 52C | Photographs of TSMC TMQG36 | Confidential |
| 53 | Redacted Version of Photographs of TSMC TMMU71 | Public |
| 53C | Photographs of TSMC TMMU71 | Confidential |
| 54 | Redacted Version of Photographs of TSMC TMLI30 | Public |
| 54C | Photographs of TSMC TMLI30 | Confidential |
| 55 | Redacted Version of U.S. Patent No. 7,745,847 Claim Chart for Apple iPhone 13 and APL1W07 A15 Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |
| 55C | U.S. Patent No. 7,745,847 Claim Chart for Apple iPhone 13 and APL1W07 A15 Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 56 | Redacted Version of U.S. Patent No. 9,093,473 Claim Chart for Apple Watch SE (2nd Gen) and APL1W85 A13 Bionic Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |
| 56C | U.S. Patent No. 9,093,473 Claim Chart for Apple Watch SE (2nd Gen) and APL1W85 A13 Bionic Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 57 | Redacted Version of U.S. Patent No. 9,147,747 Claim Chart for Apple iPhone 15 Pro and APL1V02 A17 Pro Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |
| 57C | U.S. Patent No. 9,147,747 Claim Chart for Apple iPhone 15 Pro and APL1V02 A17 Pro Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 58 | Redacted Version of U.S. Patent No. 9,184,292 Claim Chart for Apple iPhone 13 and APL1W07 A15 Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |
| 58C | U.S. Patent No. 9,184,292 Claim Chart for Apple iPhone 13 and APL1W07 A15 Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 59 | Redacted Version of U.S. Patent No. 9,953,880 Claim Chart for Apple iPhone 15 Pro and APL1V02 A17 Pro Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |

| Exhibit No. | Description | Designation |
|---|---|---|
| 59C | U.S. Patent No. 9,953,880 Claim Chart for Apple iPhone 15 Pro and APL1V02 A17 Pro Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
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| 61 | DigiTimes Asia "Biden's Chip Strategy Highlights TSMC over Intel as His Term Approaches Its End" | Public |
| 62 | TSMC "CyberShuttle" | Public |
| 63 | TSMC "TSMC University FinFET Program" | Public |
| 64 | Apple "iPad mini - Tech Specs" | Public |
| 65 | Apple "Buy 13-inch MacBook Air with M2 Chip" | Public |
| 66 | Production Expert "Apple Silicon M2 - What We Know So Far" | Public |
| 67 | Tom's Hardware "Apple Spent $1 Billion to Tape Out New M3 Processors" | Public |
| 68 | Photographs of iPhone 15 Pro | Public |
| 69 | Photographs of iPhone 13 | Public |
| 70 | Photographs of Apple Watch SE (2nd Gen) | Public |
| 71 | Receipt for iPhone 15 Pro | Public |
| 72 | Receipt for iPhone 13 | Public |
| 73 | Receipt for Apple Watch SE (2nd Gen) | Public |
| 74 | TechInsights "Broadcom BCM4399Y Wi-Fi 7/BT 5.4 Combo SoC Floorplan Analysis" | Public |
| 75 | Photographs of BCM957608 | Public |
| 76 | Redacted Version of Photographs of BCM4399 | Public |
| 76C | Photographs of BCM4399 | Confidential |
| 77 | Redacted Version of U.S. Patent No. 7,745,847 Claim Chart for Broadcom BCM957608 Ethernet Network Interface Card and Broadcom BCM57608 Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |
| 77C | U.S. Patent No. 7,745,847 Claim Chart for Broadcom BCM957608 Ethernet Network Interface Card and Broadcom BCM57608 Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 78 | Redacted Version of U.S. Patent No. 9,093,473 Claim Chart for iPhone 16 Pro Max (USI 339S01464) and Broadcom BCM4398 Die Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |
| 78C | U.S. Patent No. 9,093,473 Claim Chart for iPhone 16 Pro Max (USI 339S01464) and Broadcom BCM4398 Die Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 79 | Redacted Version of U.S. Patent No. 9,184,292 Claim Chart for Broadcom BCM957608 Ethernet Network Interface Card and Broadcom BCM57608 Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |

| Exhibit No. | Description | Designation |
|---|---|---|
| 79C | U.S. Patent No. 9,184,292 Claim Chart for Broadcom BCM957608 Ethernet Network Interface Card and Broadcom BCM57608 Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 80 | Receipt for BCM957608 | Public |
| 81 | Receipt for BCM4399 | Public |
| 82 | AnandTech "The Qualcomm Snapdragon X Architecture Deep Dive: Getting To Know Oryon and Adreno X1" | Public |
| 83 | Tom's Hardware - Snapdragon X Elite Outperforms Intel, AMD, Apple CPUs (In Vendor Benchmarks) | Public |
| 84 | NotebookChec "Qualcomm Snapdragon X Elite X1E-78-100" | Public |
| 85 | GSMarena "Motorola Moto G Play (2024)" | Public |
| 86 | GizmoChina "New Qualcomm Mid-Range Chips on the Way, Will Support 144Hz Refresh Rate" | Public |
| 87 | Qualcomm "Snapdragon 680 4G Mobile Platform" | Public |
| 88 | Photographs of Lenovo Yoga Slim 7x and Qualcomm Snapdragon X Elite | Public |
| 89 | Photographs of Motorola Moto G Play and Qualcomm Snapdragon 680 4G | Public |
| 90 | Redacted Version of U.S. Patent No. 7,745,847 Claim Chart for Lenovo Yoga Slim 7x Laptop and Qualcomm Snapdragon X Elite Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |
| 90C | U.S. Patent No. 7,745,847 Claim Chart for Lenovo Yoga Slim 7x Laptop and Qualcomm Snapdragon X Elite Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 91 | Redacted Version of U.S. Patent No. 9,093,473 Claim Chart for Motorola Moto G Play and Qualcomm Snapdragon 680 4G Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |
| 91C | U.S. Patent No. 9,093,473 Claim Chart for Motorola Moto G Play and Qualcomm Snapdragon 680 4G Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 92 | Redacted Version of U.S. Patent No. 9,184,292 Claim Chart for Lenovo Yoga Slim 7x Laptop and Qualcomm Snapdragon X Elite Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |
| 92C | U.S. Patent No. 9,184,292 Claim Chart for Lenovo Yoga Slim 7x Laptop and Qualcomm Snapdragon X Elite Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 93 | Receipt for Lenovo Yoga Slim 7x | Public |
| 94 | TSMC "TSMC Arizona" | Public |
| 95 | Receipt for Motorola Moto G Play | Public |
| 96 | Nsane Forums "Qualcomm Announces Snapdragon 8 Elite Flagship Smartphone Soc with Major Improvements" | Public |
| 97 | Qualcomm "Snapdragon 8 Elite Mobile Platform" Product Brief | Public |
| 98 | OnePlus "Buy OnePlus 13R" | Public |

| Exhibit No. | Description | Designation |
|---|---|---|
| 99 | XDA "Qualcomm's Snapdragon 8 Gen 3 to Be Manufactured on TSMC's 4nm Process" | Public |
| 100 | Qualcomm "Snapdragon 8 Gen 3 Mobile Platform" Product Brief | Public |
| 101 | AnandTech "Qualcomm Unveils Snapdragon 6 Gen 1 and 4 Gen 1 SoCs" | Public |
| 102 | Qualcomm "Snapdragon 695 5G Mobile Platform" Product Brief | Public |
| 103 | Photographs of OnePlus 13 and Qualcomm Snapdragon 8 Elite | Public |
| 104 | Photographs of OnePlus 13R and Qualcomm Snapdragon 8 Gen 3 | Public |
| 105 | Photographs of OnePlus Nord N30 5G and Qualcomm Snapdragon 695 5G | Public |
| 106 | Redacted Version of U.S. Patent No. 7,745,847 Claim Chart for OnePlus 13R and Qualcomm Snapdragon 8 Gen 3 Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |
| 106C | U.S. Patent No. 7,745,847 Claim Chart for OnePlus 13R and Qualcomm Snapdragon 8 Gen 3 Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 107 | Redacted Version of U.S. Patent No. 9,093,473 Claim Chart for OnePlus Nord N30 5G and Qualcomm Snapdragon 695 5G Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |
| 107C | U.S. Patent No. 9,093,473 Claim Chart for OnePlus Nord N30 5G and Qualcomm Snapdragon 695 5G Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 108 | Redacted Version of U.S. Patent No. 9,147,747 Claim Chart for OnePlus 13 and Qualcomm Snapdragon 8 Elite Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |
| 108C | U.S. Patent No. 9,147,747 Claim Chart for OnePlus 13 and Qualcomm Snapdragon 8 Elite Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 109 | Redacted Version of U.S. Patent No. 9,184,292 Claim Chart for OnePlus 13R and Qualcomm Snapdragon 8 Gen 3 Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |
| 109C | U.S. Patent No. 9,184,292 Claim Chart for OnePlus 13R and Qualcomm Snapdragon 8 Gen 3 Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 110 | Redacted Version of U.S. Patent No. 9,953,880 Claim Chart OnePlus 13 and Qualcomm Snapdragon 8 Elite Integrated Circuit / TSMC Semiconductor Wafer and Die | Public |
| 110C | U.S. Patent No. 9,953,880 Claim Chart OnePlus 13 and Qualcomm Snapdragon 8 Elite Integrated Circuit / TSMC Semiconductor Wafer and Die | Confidential |
| 111 | Receipt for OnePlus 13 | Public |
| 112 | Receipt for OnePlus 13R | Public |
| 113 | Receipt for OnePlus Nord N30 5G | Public |

| Exhibit No. | Description | Designation |
|---|---|---|
| 114 | Redacted Version of Patent License Agreement between Marlin Semiconductor and Intel | Public |
| 114C | Patent License Agreement between Marlin Semiconductor and Intel | Confidential |
| 115 | Intel “Campus Locations” | Public |
| 116 | Intel “Updates: Intel’s 10 Largest Construction Projects” | Public |
| 117 | Intel “Intel’s Arizona Expansion Marks Construction Milestone” | Public |
| 118 | Intel “Intel Opens Fab 9 in New Mexico” | Public |
| 119 | Intel “Intel in California” | Public |
| 120 | Intel “Intel in Oregon” | Public |
| 121 | Intel “Intel in Arizona” | Public |
| 122 | Intel “Intel in New Mexico” | Public |
| 123 | Intel “Intel in Texas” | Public |
| 124 | Intel “Intel in Massachusetts” | Public |
| 125 | Intel “Intel in Costa Rica” | Public |
| 126 | Intel “Intel in Ireland” | Public |
| 127 | Intel “Intel in Israel” | Public |
| 128 | Intel “Intel Announces Initial Investment of Over €33 Billion for R&D and Manufacturing in EU” | Public |
| 129 | Intel “Intel in Poland” (Translated) | Public |
| 130 | Intel “Intel Around the World” | Public |
| 131 | Intel “Intel in India” | Public |
| 132 | Intel “Intel in Malaysia” (Translated) | Public |
| 133 | Intel “Intel in Vietnam” (Translated) | Public |
| 134 | Macrotrends “Intel: Number of Employees 2010-2024” | Public |
| 135 | Exemplary DI Product List | Public |
| 136 | Summary of Intel Product Group Count | Public |
| 137 | Intel “10nm, Creative Improvements Expand Intel Manufacturing Capacity” | Public |
| 138 | Tom’s Hardware “Intel’s Long Awaited Fab 42 is Fully Operational” | Public |
| 139 | Z2Data “Where Are All the North American Semiconductor Fabs Being Built (2024 Edition)” | Public |
| 140 | Intel “Intel Supports American Innovation with 7 Billion Investment in Next-Generation Semiconductor Factory in Arizona” | Public |
| 141 | AnandTech, “Intel’s New IDM 2.0 Strategy” | Public |
| 142 | Intel “Intel Breaks Ground in Arizona” | Public |
| 143 | Intel “Global Manufacturing at Intel” | Public |
| 144 | Photographs of Intel SRK02 Core i7-1165G7 | Public |
| 145 | Photographs of Intel Core Ultra 7 265k | Public |

## APPENDICES[1]

| Appendix No. | Description |
|---|---|
| A | Certified File History of U.S. Patent No. 7,745,847 |
| B | Certified File History of U.S. Patent No. 9,093,473 |
| C | File History for the Priority Application for U.S. Patent No. 9,093,473 |
| D | Certified File History of U.S. Patent No. 9,147,747 |
| E | Certified File History of U.S. Patent No. 9,184,292 |
| F | File History for the Priority Application for U.S. Patent No. 9,184,292 |
| G | Certified File History of U.S. Patent No. 9,953,880 |
| H | File History for the Priority Application for U.S. Patent No. 9,953,880 |

[1] Per Commission Rule 210.12(c)(2), certified copies of the prosecution histories of the priority applications for U.S. Patent No. 9,093,473; U.S. Patent No. 9,184,292; and U.S. Patent No. 9,953,880 are attached hereto as Appendices C, F, and H respectively. There are no separate priority applications for U.S. Patent No. 7,745,847 and U.S. Patent No. 9,147,747.

## I. INTRODUCTION

1. This Complaint is filed by Longitude Licensing Ltd. ("Longitude") and Marlin Semiconductor Limited ("Marlin Semiconductor") (together, "Complainants") pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337 ("Section 337") to remedy the unlawful and unauthorized importation, sale for importation, and/or sale within the United States after importation, into the United States, of certain foreign-fabricated semiconductor devices, products containing the same, and components thereof that directly infringe, literally or under the doctrine of equivalents, certain claims of U.S. Patent No. 7,745,847 (the "'847 Patent"); U.S. Patent No. 9,093,473 (the "'473 Patent"); U.S. Patent No. 9,147,747 (the "'747 Patent"); U.S. Patent No. 9,184,292 (the "'292 Patent"); and U.S. Patent No. 9,953,880 (the "'880 Patent") (collectively, the "Asserted Patents"). Certified copies of the '847, '473, '747, '292 and '880 Patents are attached hereto as **Exhibits 1-5** respectively, and certified copies of the assignment records of each patent are attached hereto as **Exhibits 6-10** respectively.

2. The proposed Respondents are Taiwan Semiconductor Manufacturing Company Limited ("TSMC") and its customers Apple Inc. ("Apple"); Broadcom Inc. ("Broadcom"); Lenovo Group Limited, Motorola (Wuhan) Mobility Technologies Communication Company Limited, and Motorola Mobile Communication Technology Ltd. (collectively, "Lenovo"); OnePlus Technology (Shenzhen) Co., Ltd. ("OnePlus"); and Qualcomm Inc. ("Qualcomm"). All of these proposed Respondents are referred to collectively throughout this Complaint as "Respondents." On information and belief, each of the Respondents imports, sells for importation, and/or sells in the United States after importation, into the United States, articles that directly infringe, literally or

under the doctrine of equivalents, the Asserted Patents.[2]

3. Pursuant to Commission Rules 210.10(b)(1) and 210.12(a)(12), categories of the articles involved are: (a) non-x86 semiconductor devices,[3] consisting of semiconductor wafers or semiconductor dies, manufactured using TSMC's 7 nm and smaller process nodes outside of the United States; (b) products containing the same consisting of: (i) standalone integrated circuits and circuit boards containing such semiconductor devices, and (ii) systems containing such semiconductor devices, consisting of smartphones, tablets, personal computers, smartwatches, and network units; and (c) components thereof consisting of: (i) components of such semiconductor devices (partial wafers), and (ii) components of such products (integrated circuit packaging and system subassemblies).

4. Pursuant to Commission Rule 210.12(a)(9)(vii), Complainants assert that the articles involved infringe at least the following claims of the Asserted Patents (collectively, the "Asserted Claims")[4]:

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[2] Complainants assert the '847, '473, and '292 Patents against all proposed Respondents and the '747 and '880 Patents against proposed Respondents TSMC, Apple, OnePlus, and Qualcomm. To the extent discovery reveals that proposed Respondents Broadcom and/or Lenovo have imported or will, prior to the final evidentiary hearing, import products within the scope of the Notice of Institution of Investigation that infringe the '747 or '880 Patent, such as products containing semiconductor devices manufactured using TSMC's 3 nm process node, Complainants will promptly seek to amend the Complaint, and to the extent necessary, the Notice of Institution of Investigation, to assert the '747 and/or '880 Patents against Broadcom and/or Lenovo.

[3] As used herein, the phrase "non-x86 semiconductor devices" refers to semiconductor devices, other than those which are made by or for Intel Corporation or Advanced Micro Devices, Inc., and their subsidiaries.

[4] Independent claims are noted in **bold** in the chart of the asserted claims for each patent.

| Asserted Patent | Respondent(s) | Asserted Claims |
|---|---|---|
| 7,745,847 | All Respondents | **1**, 2-5, 7-11 |
| 9,093,473 | All Respondents | **1**-10 |
| 9,147,747 | TSMC, Apple, OnePlus, and Qualcomm | **1**, 2, 3, 6, 7 |
| 9,184,292 | All Respondents | **1**, 3-8, **9**, 11-14, **15**, 17-20 |
| 9,953,880 | TSMC, Apple, OnePlus, and Qualcomm | **1**-12 |

5. To remedy Respondents' continuing and unlawful violation of Section 337, Complainants seek, as permanent relief, a limited exclusion order pursuant to 19 U.S.C. § 1337(d) against each named Respondent and its subsidiaries, predecessors, affiliates, agents, successors, and assigns, barring from entry into the United States all articles (made from or incorporating non-x86 semiconductor wafers or dies manufactured using TSMC's 7 nm and smaller process nodes outside of the United States) that directly infringe (and/or are made from processes that infringe), literally or under the doctrine of equivalents, the Asserted Patents. Complainants also seek cease and desist orders pursuant to 19 U.S.C. § 1337(f), prohibiting each Respondent and its subsidiaries, predecessors, affiliates, agents, successors, and assigns from engaging in the (a) importation, sale for importation, and/or sale within the United States after importation of such articles; (b) marketing, distributing, offering for sale, selling, or otherwise transferring (except for exportation) in the United States of such articles; (c) advertising of such imported articles; (d) soliciting U.S. agents, retailers, resellers, or distributors for such articles; and (e) aiding or abetting other entities in the importation, sale for importation, sale after importation, transfer (except for exportation), or distribution of such articles.

6. As noted above, the scope of the requested remedial orders in this Investigation is limited to non-x86 semiconductor wafers or dies manufactured using TSMC's 7 nm and smaller process nodes outside of the United States, products containing the same, and components thereof. In other words, the requested remedial orders would not seek exclusion of products that contain no portion of a TSMC foreign-fabricated wafer, *e.g.*, products that only contain x86 semiconductor

devices, semiconductor devices made by non-parties, and/or semiconductor devices made by TSMC's future fabrication plant in Phoenix, Arizona.

7. Further, Complainants request that the Commission impose a bond upon Respondents' importation of such infringing articles during the 60-day Presidential review period pursuant to 19 U.S.C. § 1337(j) to prevent further injury to Complainants and their licensee's domestic industry relating to each of the Asserted Patents.

## II. THE PARTIES

### A. The Complainants

8. Pursuant to Commission Rule 210.12(a)(7), Complainant Marlin Semiconductor Limited is an Irish limited liability company and has a principal place of business at Blanchardstown Corporate Park 2, Plaza 255, Suite 2A, Dublin D15 YH6H, Ireland.

9. Pursuant to Commission Rule 210.12(a)(7), Complainant Longitude Licensing Ltd. is an Irish limited liability company and has a principal place of business at Blanchardstown Corporate Park 2, Plaza 255, Suite 2A, Dublin D15 YH6H, Ireland.

10. Marlin Semiconductor is the owner by assignment of the entire right, title, and interest in and to each of the Asserted Patents. *See* **Exhibits 6-11C**. Longitude has the exclusive rights to license the Asserted Patents to the Respondents. *See* **Exhibit 12C**.

11. Complainants own and manage a portfolio of over 800 patents, including the Asserted Patents, which Marlin Semiconductor acquired from United Microelectronics Corporation ("UMC"), one of the world's leading semiconductor foundry manufacturers. *See, e.g.*, **Exhibit 13**, https://longitudelicensing.ie/about_us.shtml (accessed Feb. 5, 2025). The Asserted Patents, and the larger Marlin Semiconductor patent portfolio, stem from the significant research and development efforts by UMC and represent UMC's extensive and longstanding commitment to industry leadership and innovation. *See, e.g.*, **Exhibit 14**,

https://www.umc.com/en/About/about_overview (accessed Feb. 5, 2025).

12. To manage the extremely valuable Marlin Semiconductor patent portfolio, which covers the Asserted Patents, Complainants have expended considerable resources to license this portfolio to the industry. Complainants' licensing efforts entailed extensive technical analysis and business discussions regarding the value of the patented technology and the business terms that are available to obtain Complainants' authorization to use the technology.

13. As a result of these efforts, Complainants' domestic licensee, and renowned leader in the semiconductor industry, Intel Corporation ("Intel"), aptly appreciated the value of the Asserted Patents and has taken a non-exclusive license to the Marlin Semiconductor patent portfolio, including each of the Asserted Patents, without the need for any litigation. Founded in 1968, Intel is a multinational company, headquartered in Santa Clara, California, and a pioneer of cutting-edge semiconductor manufacturing technology. Intel is one of the few companies in the United States that continues to manufacture its chips in large volumes at its own massive semiconductor fabs in Arizona, New Mexico, and Oregon, while additionally building two new leading-edge chip factories in Ohio. **Exhibit 15** (Intel 2024 Form 10-K) at 4. Intel has made, and continues to make, substantial investments in the research, development, and manufacturing of high-quality semiconductor devices, integrated circuits (*e.g.*, Intel's 14th Generation product families), and system products containing the same (*e.g.*, computing devices and servers) that practice, or are made from processes that practice, the Asserted Patents. *See, e.g.*, **Exhibits 15-17** (Intel 2022-2024 Forms 10-K); **Exhibits 18C-27C** (DI Representative Article claim charts).

14. By contrast, despite Complainants' good-faith efforts, for nearly two years, to reach a business resolution, Respondents continue to reap the benefits of the patented technology without authorization. Prior to initiating litigation, since March 8, 2023, Complainants sought to negotiate

a license with TSMC (the supplier of the infringing technology and processes to all of the proposed Respondents in the proposed Investigation), and its customer, Apple.[5] Specifically, on March 8, 2023, Complainants sent a notice letter to Apple that its products infringe twelve of Marlin Semiconductor's patents, including the '847 Patent and the '473 Patent, based on its incorporation of infringing TSMC products. In a second notice letter dated December 7, 2023, Complainants informed Apple that various Apple products infringed an additional twelve Marlin Semiconductor patents, including the '292 Patent. Complainants conducted extensive discussions with Apple and TSMC to attempt to reach an amicable license. These discussions included at least seven virtual meetings, numerous email exchanges, and two in-person meetings in Hsinchu, Taiwan with TSMC. However, neither Apple nor TSMC has ever made an offer to purchase a license to use the Asserted Patents.

### B. The Proposed Respondents

#### 1. TSMC

15. Pursuant to Commission Rule 210.12(a)(4), proposed Respondent **Taiwan Semiconductor Manufacturing Company Limited** ("TSMC") is a Taiwanese company with a principal place of business at 8, Li Hsin Road 6, Hsinchu Science Park, Hsinchu City 30078, Taiwan.

16. TSMC, itself and/or through its subsidiaries and corporate relatives, imports, sells for importation, and/or sells in the United States after importation, products that infringe (or that are manufactured by processes that infringe) the Asserted Patents, including foreign-fabricated non-x86 semiconductor devices, integrated circuits, and components thereof.

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[5] Complainants also sent a notice letter to TSMC's customer, Broadcom, that its products infringe fifteen of Marlin's patents, including the '847 patent and the '473 patent, based on its incorporation of infringing TSMC products. However, Broadcom chose not to respond to Complainants' letter.

17. On information and belief, TSMC is engaged in the manufacturing, research, development, testing, marketing, distribution, shipping, importation, sale for importation, and/or sale within the United States after importation of products that infringe (or that are manufactured by processes that infringe) the Asserted Patents.

18. According to TSMC's annual report, in 2023, 65.2% of TSMC's net revenue came from sales contracts with customers in the "United States," and 37.7% of TSMC's net revenue came from its "Smartphone" platform. **Exhibit 28** (TSMC 2023 Annual Report), Consolidated Financial Statements at 52. In addition, TSMC collaborates closely with Stanford, MIT, Princeton, and UCSD on the "TSMC University Collaboration Program," and offers the "TSMC University Shuttle Program" which provides "access to TSMC silicon process technologies for digital and analog/mixed signal circuits, RF designs, non-volatile memory design and ultra-low power designs." *Id.* at 104. Also, TSMC "provides customer support, account management and engineering services through offices in North America[.]" *Id.* at 16. Further, according to TSMC's annual report, TSMC operates subsidiaries in the United States, such as TSMC North America, whose business activities include "[s]ales and marketing of integrated circuits and semiconductor devices." *Id.* at 181.

19. TSMC reports that its U.S. customers include Broadcom Inc. and Qualcomm Inc. *Id.* at 109. On information and belief, TSMC fabricates: (i) the Broadcom BCM57608 integrated circuit (incorporated in the Broadcom BCM957608 network unit) using TSMC's infringing 5 nm process node overseas (*see* ¶¶ 125, 135 *infra*); (ii) the Broadcom BCM4399 semiconductor die using TSMC's infringing 7 nm process node, which is manufactured overseas and incorporated into products such as iPhone 16 Pro Max (*see* ¶¶ 125, 136 *infra*); (iii) the Qualcomm Snapdragon X Elite integrated circuit using TSMC's infringing 4 nm process node, which is manufactured

overseas and incorporated into products such as the Lenovo Yoga Slim 7x personal computer (*see* ¶¶ 168, 178-179 *infra*); and (iv) the Qualcomm Snapdragon 680 4G integrated circuit using TSMC's infringing 6 nm process node, which is manufactured overseas and incorporated into products such as the Motorola Moto G Play smartphone (*see* ¶¶ 168, 180-181 *infra*).

**2. Apple**

20. Pursuant to Commission Rule 210.12(a)(4), proposed Respondent **Apple Inc.** ("Apple") is a publicly traded corporation organized under the laws of the State of California and has its principal place of business at 1 Apple Park Way, Cupertino, CA 95014.

21. Apple, itself and/or through its subsidiaries and corporate relatives, imports, sells for importation, and/or sells in the United States after importation, products that directly infringe (or that are manufactured by processes that directly infringe) the Asserted Patents, including: (1) non-x86 semiconductor dies manufactured using TSMC's 7 nm and smaller process nodes outside of the United States; (2) integrated circuits and circuit boards containing the same; (3) systems (*i.e.*, smartphones, tablets, smartwatches, and personal computers) containing the same; and (4) components thereof.

22. On information and belief, Apple is engaged in the manufacturing, research, development, testing, marketing, distribution, shipping, importation, sale for importation, and/or sale within the United States after importation of products that infringe (or that are manufactured by processes that infringe) the Asserted Patents, including foreign-fabricated non-x86 semiconductor devices, products containing the same, and components thereof. *See, e.g.*, **Exhibit 29**, https://www.apple.com/iphone/ (accessed Feb. 5, 2025); **Exhibit 30**, https://www.apple.com/watch/ (accessed Feb. 5, 2025).

23. According to its 2024 Form 10-K, Apple "designs, manufactures and markets smartphones, personal computers, tablets, wearables and accessories, and sells a variety of related

services," including iPhone, iPad, iMac, MacBook, Mac Mini, and smartwatches. **Exhibit 31** (Apple 2024 Form 10-K) at 1.

### 3. Broadcom

24. Pursuant to Commission Rule 210.12(a)(4), proposed Respondent **Broadcom Inc.** ("Broadcom") is a company organized under the laws of the State of Delaware, with its principal place of business at 1320 Ridder Park Drive, San Jose, CA 95131. Broadcom, itself and/or through its subsidiaries and corporate relatives, imports, sells for importation, and/or sells in the United States after importation, products that directly infringe (or that are manufactured by processes that directly infringe) the Asserted Patents, including: (1) non-x86 semiconductor dies manufactured using TSMC's 7 nm and smaller process nodes outside of the United States; (2) integrated circuits and circuit boards containing the same; (3) systems (*i.e.*, network units) containing the same; and (4) components thereof.

25. According to its 2024 Form 10-K, Broadcom develops "semiconductor devices with a focus on complex digital and mixed signal complementary metal oxide semiconductor ('CMOS') based devices and analog III-V based products" and offers "thousands of products that are used in end products such as enterprise and data center networking, including artificial intelligence ('AI') networking and connectivity, home connectivity, set-top boxes ('STB'), broadband access, telecommunication equipment, smartphones and base stations, data center servers and storage systems, factory automation, power generation and alternative energy systems, and electronic displays." **Exhibit 32** (Broadcom 2024 Form 10-K) at 3.

26. According to its 2024 Form 10-K, in 2024, 25% of Broadcom's net revenue came from the United States. *Id.* at 88. In addition, Broadcom noted that "we believe a substantial portion of our products shipped or delivered to China (including Hong Kong) is included in devices sold by our end customers in the United States and Europe." *Id.*

27. On information and belief, for example, the Broadcom Tomahawk 5 (part # BCM78900) and Tomahawk 4 (part # BCM56990) integrated circuits incorporate non-x86 semiconductor dies manufactured outside of the United States using TSMC's 5 nm and 7 nm process nodes, respectively. **Exhibit 33** (TSMC Presentation "Sailing into the Future of the Semiconductor Industry") at 15 (available at https://iedm24.mapyourshow.com/mys_shared/iedm24/handouts/SC1-1_Yuan.pdf (accessed Feb. 5, 2025)). At the 2022 OCP Summit in San Jose, California, Broadcom "showed off" standalone circuit boards incorporating its Tomahawk 5 integrated circuit. **Exhibit 34**, https://www.servethehome.com/broadcom-tomahawk-5-at-ocp-summit-2022/ (Oct. 25, 2022). In addition, Broadcom displayed and demonstrated its Tomahawk 4 integrated circuit co-packaged with optical engines onto a standalone circuit card, which Broadcom refers to as its "co-packaged optics" or "CPO" product. **Exhibit 35**, https://www.servethehome.com/awesome-broadcom-co-packaged-optics-and-silicon-photonics-ocp-summit-2022/ (Oct. 21, 2022). Specifically, upon information and belief, Broadcom's CPO solution comprises a standalone circuit card "substrate" that connects Broadcom's application-specific integrated circuits, such as the Tomahawk 4, to one or more discrete optical engines. **Exhibit 36** (Broadcom Presentation "Optical Interconnects for AI: Components and Co-Packaged Optics (CPO)") at 11 (available at https://docs.broadcom.com/doc/optical-interconnects-for-ai-2024 (accessed Feb. 5, 2025)). On information and belief, Broadcom also showcased several of these products at the 2024 OCP Summit in San Jose, California. **Exhibit 37**, https://www.broadcom.com/company/news/product-releases/62611 (Oct. 8, 2024).

**4. Lenovo**

28. Pursuant to Commission Rule 210.12(a)(4) and on information and belief, proposed Respondent **Lenovo Group Ltd.** ("Lenovo Group") is a limited liability company incorporated in

Hong Kong with its headquarters and principal place of business at 23rd Floor, Lincoln House, Taikoo Place, 979 King's Road, Quarry Bay, Hong Kong. On information and belief, Lenovo Group Ltd. is the corporate parent of a multinational conglomerate that operates under the name "Lenovo" and refers to itself and its subsidiaries as the "Group." On information and belief, Lenovo Group's subsidiaries include proposed Respondents **Motorola (Wuhan) Mobility Technologies Communication Company Limited** ("Motorola Wuhan") and **Motorola Mobile Communication Technology Ltd**. ("Motorola Mobile") (Motorola Wuhan and Motorola Mobile together, "Motorola"). On information and belief, Motorola Wuhan is a corporation organized and existing under the laws of China, with a principal place of business at No. 19, Gaoxin 4th Road, Donghu New Technology Development Zone, Wuhan, Hubei, China 430205. On information and belief, Motorola Mobile Communication Technology Ltd. ("Motorola Mobile") is a corporation organized and existing under the laws of China, with a principal place of business at Room 203A, Area A, No. 178 Xinfeng Road, Huizhi Space, Torch High-tech Zone, Xiamen, Fujian, China 361006. On information and belief, both Motorola Wuhan and Motorola Mobile are wholly owned subsidiaries of (or are otherwise controlled by) Lenovo Group Ltd. and are part of the Lenovo Group.

29. Upon information and belief, Lenovo Group, itself and/or through its subsidiaries, including Motorola Wuhan, Motorola Mobile, and corporate relatives, imports, sells for importation, and/or sells in the United States after importation, products that directly infringe (or that are manufactured by processes that directly infringe) the Asserted Patents, including: (1) non-x86 semiconductor dies manufactured using TSMC's 7 nm and smaller process nodes outside of the United States; (2) integrated circuits and circuit boards containing the same; (3) systems (*i.e.*, smartphones, tablets, smartwatches, and personal computers) containing the same; and (4)

components thereof.

30. On information and belief, Lenovo and its subsidiaries are engaged in the design, manufacture, importation, and/or sale within the United States after importation of products that directly infringe (or that are manufactured by processes that directly infringe) the Asserted Patents, including: (1) non-x86 semiconductor dies manufactured using TSMC's 7 nm and smaller process nodes outside of the United States; (2) integrated circuits and circuit boards containing the same; (3) systems (*i.e.*, smartphones, tablets, smartwatches, and personal computers) containing the same; and (4) components thereof. *See*, *e.g.*, **Exhibit 38**, https://www.motorola.com/us/en/p/phones/moto-g/g-play-gen-3/pmipmgj36mj?pn=PB0C0007US (accessed Feb. 5, 2025); **Exhibit 39**, https://www.lenovo.com/us/en/p/laptops/yoga/yoga-slim-series/yoga-slim-7x-gen-9-14-inch-snapdragon/len101y0049 (accessed Feb. 5, 2025).

**5. OnePlus**

31. Pursuant to Commission Rule 210.12(a)(4), proposed Respondent **OnePlus Technology (Shenzhen) Co., Ltd.** ("OnePlus") is a corporation organized and existing under the laws of China, with a principal place of business at 18th Floor, Block C, Tairan Building, Tairan 8th Road, Shenzhen, Guangdong, China 518000.

32. OnePlus, either itself and/or through the activities of its subsidiaries, designs, manufactures, has manufactured, sells, imports, sells for importation, and/or sells within the United States after importation, into the United States, products that directly infringe (or that are manufactured by processes that directly infringe) the Asserted Patents, including: (1) non-x86 semiconductor dies manufactured using TSMC's 7 nm and smaller process nodes outside of the United States; (2) integrated circuits and circuit boards containing the same; (3) systems (*i.e.*, smartphones, tablets, smartwatches, and personal computers) containing the same; and (4)

components thereof.

33. On information and belief, OnePlus is engaged in the design, manufacture, importation, and/or sale within the United States after importation of products that directly infringe (or that are manufactured by processes that directly infringe) the Asserted Patents, including: (1) non-x86 semiconductor dies manufactured using TSMC's 7 nm and smaller process nodes outside of the United States; (2) integrated circuits and circuit boards containing the same; (3) systems (*i.e.*, smartphones, tablets, and smartwatches) containing the same; and (4) components thereof. *See*, *e.g.*, **Exhibit 40**, https://www.oneplus.com/us/oneplus-13 (accessed Feb. 12, 2025); **Exhibit 41**, https://www.oneplus.com/us/oneplus-n30-5g (accessed Feb. 12, 2025).

**6. Qualcomm**

34. Pursuant to Commission Rule 210.12(a)(4), proposed Respondent **Qualcomm Inc.** ("Qualcomm") is a corporation organized and existing under the laws of the State of Delaware with its principal place of business at 5775 Morehouse Drive, San Diego, CA, 92121.

35. Qualcomm, either itself and/or through the activities of its subsidiaries, designs, manufactures, has manufactured, sells, imports, sells for importation, and/or sells within the United States after importation, into the United States, products that directly infringe (or that are manufactured by processes that directly infringe) the Asserted Patents, including: (1) non-x86 semiconductor dies manufactured using TSMC's 7 nm and smaller process nodes outside of the United States, (2) integrated circuits and circuit boards containing the same, and (3) components thereof.

36. On information and belief, as a fabless entity, Qualcomm employs the services of foundries who manufacture the foreign-fabricated semiconductor devices, integrated circuits, and components thereof abroad. **Exhibit 42** (Qualcomm 2024 Form 10-K) at 11. These foreign-fabricated semiconductor devices, integrated circuits, and components thereof are incorporated

into various downstream products (*e.g.*, smartphones, tablets, smartwatches, and personal computers) that are then sold for importation into the United States, imported into the United States, and/or sold within the United States after importation. *Id.* at 6.

37. In addition, on information and belief, Qualcomm imports, sells for importation, and/or sells within the United States after importation, standalone circuit boards containing such non-x86 semiconductor devices and integrated circuits, such as the Qualcomm Innovators Development Kit, which is a circuit board that incorporates the "latest premium Snapdragon system-on-chip (SoC)." **Exhibit 43**, https://www.qualcomm.com/developer/hardware/qualcomm-innovators-development-kit (accessed Feb. 5, 2025).

38. According to Qualcomm's website, its portfolio "includes products for processors, modems, platforms, RF systems, and connectivity, plus products based on the end-use application of your design. [Qualcomm] offer[s] a full range of purpose-built, pre-packaged software, hardware, and tools[.]" **Exhibit 44**, https://www.qualcomm.com/company#about (accessed Feb. 5, 2025).

## III. THE PATENTS

39. The Asserted Patents disclose novel semiconductor devices and methods for fabricating the same.[6] These semiconductor devices and processes are incorporated in, or used in the manufacture of, integrated circuits. Integrated circuits (often referred to as "chips") are produced in special manufacturing facilities called "foundries" or "fabs."

40. The Asserted Patents are all directed toward the design and manufacture of transistors used in semiconductor devices for integrated circuits. For decades, the scaling of

[6] The non-technical description of the patented technology is provided herein for compliance with the Commission Rules and is not intended to define, limit, or otherwise affect the construction and/or application of any of the Asserted Patents.

features in integrated circuits has been a driving force in the semiconductor industry to pack more and more functional units within the limited real estate of semiconductor chips. The fabrication of semiconductors is based on particular sizes that create unique semiconductor device architecture called "process nodes," which have tangible benefits on device capacity and functionality.

41. Over the years, the sizes of the individual elements in process nodes, also known as feature sizes, have shrunk from being measured in micrometers (µm) (millionth of a meter) to nanometers (nm) (billionth of a meter). Despite theoretical performance gains that might be achieved from smaller transistors—including improvements in power consumption, speed, and density—shrinking the size of a transistor requires significant innovation. For example, in modern process nodes, feature sizes range from 3 nanometers to hundreds of nanometers. To put this into perspective, the size of a silicon atom is roughly 0.2 nanometers, meaning that the minimum feature size at the 3 nm process node is equivalent to only 15 silicon atoms.

42. The Asserted Patents are therefore foundational to designing and manufacturing semiconductor devices at these increasingly small geometries.

43. Pursuant to Commission Rule 210.12(a)(9)(iii), Complainants have attached as **Exhibit 45C** a list containing an identification of each licensee under each involved U.S. patent.

### A. The Asserted '847 Patent

#### 1. Ownership and Asserted Claims of the '847 Patent

44. U.S. Patent No. 7,745,847 is entitled "Metal Oxide Semiconductor Transistor," and issued on June 29, 2010 to inventors Chu-Yin Tseng, Shih-Chieh Hsu, Chih-Chiang Wu, Shyh-Fann Ting, Po-Lun Cheng, and Hsuan-Hsu Chen. The '847 Patent issued from U.S. Patent Application No. 11/836,772, which was filed on Aug. 9, 2007.

45. By way of assignment, Complainant Marlin Semiconductor owns all rights, title, and interest to the '847 Patent. As required by Commission Rules 210.12(a)(9)(i)-(ii), certified

copies of the ’847 Patent and its assignment records are attached as **Exhibits 1** and **6** respectively.

46. In accordance with Commission Rules 210.12(c)(1)-(2), **Appendix A** to this Complaint includes one certified copy of the U.S. Patent and Trademark Office prosecution history for the ’847 Patent, and there is no separate priority application for the ’847 Patent.

47. All fees for the ’847 Patent have been timely paid, and there are no fees currently due. In accordance with Commission Rule 210.12(a)(9)(xi), the expiration date of the ’847 Patent is June 10, 2028.

48. The ’847 Patent has 11 claims, including independent claim 1 and dependent claims 2-11. Complainants are asserting at least claims 1, 2-5, and 7-11 of the ’847 Patent (the “Asserted ’847 Patent Claims”) against all proposed Respondents.

### 2. Foreign Counterparts to the ’847 Patent

49. In accordance with Commission Rule 210.12(a)(9)(v), Complainants have listed in the table below the only known foreign counterpart to the ’847 Patent.

| Application Number | Publication Number | Status |
|---|---|---|
| TW096129401 | TWI341563B | Granted |

### 3. Non-Technical Description of the ’847 Patent

50. Pursuant to Commission Rule 210.12(a)(9)(vi), the ’847 Patent is directed toward a metal oxide semiconductor (MOS) transistor incorporating a raised epitaxially grown source/drain region in the substrate where the sidewall spacer of the gate is formed on a raised portion of the source/drain. **Exhibit 1**, ’847 Patent at 1:7-10, 1:56-2:34.

51. For a given electric field across the channel of a MOS transistor, the amount of current that flows through the channel is generally directly proportional to a mobility of the carriers in the channel. *Id.* at 1:12-24. Therefore, improving the carrier mobility so as to increase the speed performance of MOS transistors has become a major topic for study in the semiconductor field. *Id.*

One way to increase the mobility of the carriers in the channel of an MOS transistor is to apply a mechanical strain in the transistor channel. *Id.* at 1:25-27. One conventional approach to applying such a strain focused on forming a strain inducing material, for example a silicon germanium (SiGe) layer, on the surface of the source/drain region formed from the substrate. *Id.* at 1:28-33. Another conventional approach to applying such a strain focused on epitaxially growing a SiGe layer adjacent to the spacers within the semiconductor substrate after forming the spacer. *Id.* at 1:33-35. However, as the critical dimensions of MOS transistors shrunk over the years, these conventional techniques for inducing a strain in the channel failed to achieve the desired performance improvements in carrier mobility. *Id.* at 1:25-48.

52. The ’847 Patent addresses this problem by disclosing a method for fabricating a strained silicon channel MOS transistor while reducing overall pattern density of the transistors. *Id.* at 1:49-52; 6:64-7:13. Specifically, the ’847 Patent improves carrier mobility in transistor structures through the use of a raised epitaxial strained source/drain formed in recesses adjacent the gate structure before the formation of the final gate sidewall spacers, thereby reducing the pattern density for the transistors while simultaneously improving transistor performance and manufacturability. *Id.* at 1:56-2:34; 6:64-7:13. As a result, the patented technology overcomes the shortcomings of the conventional approaches in applying strains in smaller geometry devices.

**B. The Asserted ’473 Patent**

**1. Ownership and Asserted Claims of the ’473 Patent**

53. U.S. Patent No. 9,093,473 is entitled “Method for Fabricating Metal-Oxide Semiconductor Transistor,” and issued on July 28, 2015 to inventors Ming-Te Wei, Wen-Chen Wu, Lung-En Kuo, and Po-Chao Tsao. The ’473 Patent issued from U.S. Patent Application No. 14/331,229, which was filed on July 15, 2014, and is a division of U.S. Patent Application No. 12/837,475, which was filed on July 15, 2010, now U.S. Patent No. 8,816,409.

54. By way of assignment, Complainant Marlin Semiconductor owns all rights, title, and interest to the ’473 Patent. As required by Commission Rules 210.12(a)(9)(i)-(ii), certified copies of the ’473 Patent and its assignment records are attached as **Exhibits 2** and **7** respectively.

55. In accordance with Commission Rules 210.12(c)(1)-(2), **Appendix B** to this Complaint includes one certified copy of the U.S. Patent and Trademark Office prosecution history for the ’473 Patent, and **Appendix C** includes the prosecution history of the priority application for the ’473 Patent.

56. All fees for the ’473 Patent have been timely paid, and there are no fees currently due. In accordance with Commission Rule 210.12(a)(9)(xi), the expiration date of the ’473 Patent is July 15, 2030.

57. The ’473 Patent has 10 claims, including the independent claim 1 and the dependent claims 2-10. Complainants are asserting claims 1-10 of the ’473 Patent (the “Asserted ’473 Patent Claims”) against all proposed Respondents.

### 2. Foreign Counterparts to the ’473 Patent

58. In accordance with Commission Rule 210.12(a)(9)(v), Complainants have listed in the table below the only known foreign counterpart to the ’473 Patent.

| Application Number | Publication Number | Status |
|---|---|---|
| TW099123277 | TWI552230B | Granted |

### 3. Non-Technical Description of the ’473 Patent

59. Pursuant to Commission Rule 210.12(a)(9)(vi), the ’473 Patent is directed toward a method for fabricating a metal-oxide semiconductor (MOS) transistor where a gate slot is formed after the formation of epitaxial source/drain layers. **Exhibit 2**, ’473 Patent at 1:15-17; 5:1-7.

60. Conventional MOS transistors known at the time of the invention, and their manufacturing processes, could not be scaled down to the transistor dimensions, spacing, and

tolerances required of modern day transistors. *Id.* at 1:26-28. At smaller geometries, conventional processes for MOS transistor formation resulted in over-etching during the slot forming process, which can cause undesired epitaxial materials to be formed during the source/drain epitaxy process resulting in line end bridges. *Id*. at 1:43-57; 5:1-11. These conventional processes also resulted in under-etching during the slot forming process, which can cause incomplete removal of the gate pattern material during slot formation also resulting in line end bridges. *Id*. Further, in conventional gate formation processes, a two-step photo etching process was used to form a gate pattern, including the gate lines and slots, which was followed by the formation of sidewall spacers on all four sides of the resulting gate pattern structures. *Id.* at 1:28-42. Using this process, critical space that could be used to reduce transistor size was wasted by the formation of the slot and resulting dual spacer structures at the ends of each gate pattern line.

61. The ’473 Patent enables the fabrication of smaller transistor geometries within stringent spacing and tolerance constraints. Specifically, the ’473 Patent discloses an improved sequence of the two-step etch process in relation to the formation of the gate pattern and epitaxial layers. After a silicon layer is formed on the semiconductor substrate, the first etching step is performed on the silicon layer to form a gate pattern. *Id.* at 1:61-2:7; 5:1-11. Next, the epitaxial source/drain is formed in the semiconductor substrate adjacent to two sides of the gate pattern. *Id.* Finally, the second etching step is performed on the gate pattern to form a slot, physically separating a line of the gate pattern into two gates. *Id.* By performing the slot formation in this manner, tolerances between ends of gate lines can be reduced while simultaneously preventing line end bridges that resulted from convention processes. *Id.*

### C. The Asserted ’747 Patent

#### 1. Ownership and Asserted Claims of the ’747 Patent

62. U.S. Patent No. 9,147,747 is entitled “Semiconductor Structure with Hard Mask

Disposed on the Gate Structure," and issued on Sept. 29, 2015 to inventors Ching-wen Hung and Chih-sen Huang. The '747 Patent issued from U.S. Patent Application No. 13/875,293, which was filed on May 2, 2013.

63. By way of assignment, Complainant Marlin Semiconductor owns all rights, title, and interest to the '747 Patent. As required by Commission Rules 210.12(a)(9)(i)-(ii), certified copies of the '747 Patent and its assignment records are attached as **Exhibits 3** and **8** respectively.

64. In accordance with Commission Rules 210.12(c)(1)-(2), **Appendix D** to this Complaint includes one certified copy of the U.S. Patent and Trademark Office prosecution history for the '747 Patent, and there is no separate priority application for the '747 Patent.

65. All fees for the '747 Patent have been timely paid, and there are no fees currently due. In accordance with Commission Rule 210.12(a)(9)(xi), the expiration date of the '747 Patent is June 6, 2033.

66. The '747 Patent has 9 claims, including the independent claim 1 and the dependent claims 2-9. Complainants are asserting at least claims 1, 2, 3, 6, and 7 of the '747 Patent (the "Asserted '747 Patent Claims") against TSMC, Apple, OnePlus, and Qualcomm.

### 2. Foreign Counterparts to the '747 Patent

67. In accordance with Commission Rule 210.12(a)(9)(v), Complainants have listed in the table below the only known foreign counterparts to the '747 Patent.

| Application Number | Publication Number | Status |
|---|---|---|
| TW102115458 | TW201442176A | Granted/Expired |
| TW102115458 | TWI584433B | Granted |

### 3. Non-Technical Description of the '747 Patent

68. Pursuant to Commission Rule 210.12(a)(9)(vi), the '747 Patent is directed toward a method of forming of contacts in semiconductor structures utilizing a hard mask on the metal

gate structures in high density transistor devices. **Exhibit 3**, ’747 Patent at 1:8-21.

69. One of the typical requirements of discrete transistors in integrated circuits (ICs) is that they must be connected to nearby transistors. *Id.* at 1:17-21. To make these connections, transistors are connected to each other through contact structures (sometimes referred to as contact plugs or contact slots) and other interconnection structures. *Id.* at 1:19-21. As ICs continued to shrink in size, the amount of space to form interconnects and other features have similarly shrunk. *Id.* at 1:13-17. However, conventional techniques for forming interconnects were overly complex, and the resulting structures themselves suffered from poor conductivity at smaller geometries. *Id.* at 1:13-21.

70. The ’747 Patent addresses these problems by disclosing a method that simplifies the conventional manufacturing process of fabricating source and drain contacts, and improving performance of contact structures, in highly miniaturized integrated circuit devices. Specifically, the ’747 Patent discloses a process for forming a novel transistor structure comprising truncated sidewall spacers and gate caps to improve the interconnect structures. *Id.* at 1:45-2:9. Additionally, the ’747 Patent discloses a process by which the hard mask on the metal gates allows for selective etching of the hard mask and dielectric layer, thereby improving the performance of the contact structures and simplifying the manufacturing process over prior configurations. *Id*. at 2:38-46.

**D. The Asserted ’292 Patent**

**1. Ownership and Asserted Claims of the ’292 Patent**

71. U.S. Patent No. 9,184,292 is entitled “Semiconductor Structure with Different Fins of FinFETs,” and issued on Nov. 10, 2015 to inventors Chin-Fu Lin, Chin-Cheng Chien, Chun-Yuan Wu, Teng-Chun Tsai, and Chih-Chien Liu. The ’292 Patent issued from U.S. Patent Application No. 14/340,267, which was filed on July 24, 2014, and is a division of U.S. Patent Application No. 13/370,231, which was filed on Feb. 9, 2012, now U.S. Patent No. 8,822,284.

72. By way of assignment, Complainant Marlin Semiconductor owns all rights, title, and interest to the ’292 Patent. As required by Commission Rules 210.12(a)(9)(i)-(ii), certified copies of the ’292 Patent and its assignment records are attached as **Exhibits 4** and **9** respectively.

73. In accordance with Commission Rules 210.12(c)(1)-(2), **Appendix E** to this Complaint includes one certified copy of the U.S. Patent and Trademark Office prosecution history for the ’292 Patent, and **Appendix F** includes the prosecution history of the priority application for the ’292 Patent.

74. All fees for the ’292 Patent have been timely paid, and there are no fees currently due. In accordance with Commission Rule 210.12(a)(9)(xi), the expiration date of the ’292 Patent is Feb. 9, 2032.

75. The ’292 Patent has 20 claims, including the independent claim 1, 9, and 15, and the dependent claims 2-8, 10-14, and 16-20. Complainants are asserting at least claims 1, 3-8, 9, 11-14, 15, and 17-20 of the ’292 Patent (the “Asserted ’292 Patent Claims”) against all proposed Respondents.

### 2. Foreign Counterparts to the ’292 Patent

76. In accordance with Commission Rule 210.12(a)(9)(v), Complainants are not aware of any foreign counterparts to the ’292 Patent.

### 3. Non-Technical Description of the ’292 Patent

77. Pursuant to Commission Rule 210.12(a)(9)(vi), the ’292 Patent is directed toward novel fin field effect transistor (FinFET) structures and associated manufacturing processes that enable high-density integrated circuits. **Exhibit 4**, ’292 Patent at 1:16-2:31.

78. Traditional (planar) metal oxide semiconductor (MOS) transistor structures were relatively large, limiting the performance and volume of transistors that could be found on a single chip. To improve performance and increase transistor density, the industry moved toward non-

planar, 3D, gate structures (often referred to as FinFETs). Compared to traditional (planar) transistors, non-planar FinFETs exhibited improved performance characteristics, including channel properties and leakage current, over conventional MOS transistors. *Id.* at 1:24-30. In addition, unlike the manufacturing processes used to fabricate traditional, planar, MOS transistors, the processes used to manufacture non-planar FinFETs were more conducive to scaling down to smaller transistor geometries, and thus higher integrated circuit density.

79. However, the inventors of the ’292 Patent recognized that the FinFET manufacturing processes and integrated circuit design principles that were known at the time of the invention would prevent continued scaling of FinFET transistors down to even smaller geometries and higher integrated circuit densities. *Id*. at 1:31-35. Specifically, the inventors of the ’292 Patent recognized that the conventional FinFET approach would break down at higher integrated circuit densities due to the large thickness of the photoresist layer, which made pattern development and accurate pattern transfer difficult, if not impossible. *Id*.

80. The inventors of the ’292 Patent thus devised a novel method of fin fabrication and an integrated circuit structure that enables improved transistor performance and continued scaling of FinFET transistors into higher density integrated circuits. *Id.* at 1:39-2:27. The ’292 Patent discloses, for example, splitting the FinFET patterning process into a multi-step process, whereby the fins for a first and a second group of fins are formed in separate patterning process steps. *Id.* at 2:16-27; 3:61-65. This novel multi-step patterning process reduces the fin density for each individual patterning step, thereby reducing photoresist layer thicknesses, and enabling higher-density integrated circuits and a higher degree of fin uniformity. *Id.* In addition, the inventors of the ’292 Patent disclose varying at least one of the width or material between different groups of fins, which enables improved FinFET performance. *Id.*

### E. The Asserted ’880 Patent

#### 1. Ownership and Asserted Claims of the ’880 Patent

81. U.S. Patent No. 9,953,880 is entitled “Semiconductor Device and Method for Fabricating the Same,” and issued on Apr. 24, 2018 to inventors Chun-Hao Lin, Hsin-Yu Chen, and Shou-Wei Hsieh. The ’880 Patent issued from U.S. Patent Application No. 15/660,991, which was filed on July 27, 2017.

82. By way of assignment, Complainant Marlin Semiconductor owns all rights, title, and interest to the ’880 Patent. As required by Commission Rules 210.12(a)(9)(i)-(ii), certified copies of the ’880 Patent and its assignment records are attached as **Exhibits 5** and **10** respectively.

83. In accordance with Commission Rules 210.12(c)(1)-(2), **Appendix G** to this Complaint includes one certified copy of the U.S. Patent and Trademark Office prosecution history for the ’880 Patent, and **Appendix H** includes the prosecution history of the priority application for the ’880 Patent.

84. All fees for the ’880 Patent have been timely paid, and there are no fees currently due. In accordance with Commission Rule 210.12(a)(9)(xi), the expiration date of the ’880 Patent is July 27, 2037.

85. The ’880 Patent has 12 claims, including the independent claim 1 and the dependent claims 2-12. Complainants are asserting claims 1-12 of the ’880 Patent (the “Asserted ’880 Patent Claims”) against TSMC, Apple, OnePlus, and Qualcomm.

#### 2. Foreign Counterparts to the ’880 Patent

86. In accordance with Commission Rule 210.12(a)(9)(v), Complainants have listed in the table below the only known foreign counterparts to the ’880 Patent.

| Application Number | Publication Number | Status |
|---|---|---|
| CN201710516576A | CN109216191A | Granted/Expired |
| CN201710516576A | CN109216191B | Granted |
| CN202210948852A | CN115377190 | Granted |

### 3. Non-Technical Description of the ’880 Patent

87. Pursuant to Commission Rule 210.12(a)(9)(vi), the ’880 Patent is directed toward methods of providing improved electrical isolation between adjacent FinFET transistor structures in high density integrated circuits. **Exhibit 5**, ’880 Patent at 1:9-12.

88. While three-dimensional or non-planar transistor technology, such as FinFET technology, could be manufactured at smaller geometries compared to conventional planar MOS transistors, thus increasing the transistor density in an integrated circuit, the ability to maximize transistor density was constrained by the need for effective isolation between neighboring transistor structures. *Id.* at 1:17-31. Without sufficient isolation (which consumes space and therefore constrains transistor density even using the smaller geometries of FinFET transistors), neighboring transistors would suffer from poor performance due to leakage current and other parasitic effects. At the time of the invention, the conventional method of isolating neighboring transistor structures consisted of fabricating single diffusion breaks (SDB) by creating a trench through a portion of the fin structure and a portion of the shallow trench isolation (STI) and depositing an isolation material into the formed trench. *Id*. at 1:32-41.

89. The inventors of the ’880 Patent recognized that the method of forming SDB structures in FinFET devices could be improved in a way that would maximize transistor density. Specifically, the inventors of the ’880 Patent recognized that the method of forming SDB structures could be improved by performing the SDB trench etching step after the formation of the polysilicon gate layer and before the final metal gate formation. *Id*. 3:3-5:10.

90. By performing the SDB formation in this order, the inventors of the ’880 Patent

developed a method that improves electrical separation while simultaneously maintaining gate-to-gate spacing between transistor structures. For example, when using the method disclosed in the ’880 Patent, the SDB structure and the dummy gate lines are formed such that enhanced electrical separation between the FinEFT structures is ensured. *Id*. at 4:8-6:35; Figs. 8-10. Additionally, the sidewall spacers formed on the SDB and the polysilicon gate lines can be used to form the source/drain regions while maintaining gate pitch of the FinFETs. *Id*. at 4:35-6:35; Figs. 9-10.

## IV. UNFAIR ACTS OF PROPOSED RESPONDENTS – PATENT INFRINGEMENT AND IMPORTATION

91. Pursuant to Commission Rules 210.12(a)(2)-(3), the unfair acts of the Respondents involve the design, manufacture, and importation, sale for importation, and/or sale within the United States after importation, into the United States, of certain products that infringe (or that are manufactured by processes that infringe) the Asserted Patents, including foreign-fabricated semiconductor devices, products containing the same (*e.g.*, integrated circuits, printed circuit boards, smartphones, tablets, smartwatches, personal computers, and network units), and components thereof, including, without limitation, the representative involved articles.

92. Pursuant to Commission Rule 210.12(b), physical samples of the representative imported articles identified in this section (Section IV (Infringement), *e.g.*, a smartphone mobile device containing an SoC) and the domestic industry representative article identified in Section VII ((Domestic Industry), *e.g.*, an Intel processor), are available for inspection at Complainants’ outside counsel’s office. Upon request of the Commission, Complainants will provide samples to the Commission. Complainants have also included charts and photographs with this Complaint depicting the representative involved articles.

93. On information and belief, the representative involved articles identified herein

infringe at least the Asserted Claims. Discovery may reveal that these products infringe additional claims of the Asserted Patents. In addition, Complainants anticipate that discovery may reveal that additional products of Respondents infringe the Asserted Patents, including but not limited to unreleased products that will become substantially fixed in design and are likely to be imported into the United States prior to the conclusion of this Investigation.

### A. TSMC

#### 1. Representative Involved Articles

94. On information and belief, TSMC is engaged in the design, manufacture, and importation, sale for importation, and/or sale within the United States after importation, into the United States, of articles that infringe literally or by equivalence at least the Asserted Claims.

95. Pursuant to Commission Rule 210.12(a)(9)(viii), Complainants are required to chart "a representative involved article" of TSMC that violates Section 337. As set forth below, Complainants have obtained three TSMC Representative Articles, each of which is incorporated in an Apple Representative Article (defined below). On information and belief, each of the TSMC Representative Articles is a non-x86 semiconductor die, extracted from a larger semiconductor wafer, which was manufactured by TSMC outside of the United States using its 3 nm, 5 nm, or 7 nm process node.

| TSMC Representative Article | Apple Representative Article | TSMC Process Node |
|---|---|---|
| TSMC TMMU71 semiconductor die extracted from TSMC semiconductor wafer | iPhone 13 / Apple A15 Bionic integrated circuit | 5 nm |
| TSMC TMLI30 semiconductor die extracted from TSMC semiconductor wafer | Apple Watch SE (2nd Gen) / Apple S8 SiP integrated circuit | 7 nm |
| TSMC TMQG36 semiconductor die extracted from TSMC semiconductor wafer | iPhone 15 Pro / Apple A17 Pro integrated circuit | 3 nm |

**Exhibit 46**, https://support.apple.com/en-us/111829 (accessed Feb. 5, 2025); **Exhibit 47**, https://www.techinsights.com/blog/apple-apl1v02-a17-pro-processor-tsmc-3nm-finfet-process-

advanced-cmos-essentials (accessed Feb. 5, 2025); **Exhibit 48**, https://support.apple.com/en-us/111872 (accessed Feb. 5, 2025); **Exhibit 49**, https://www.techinsights.com/products/ace-2109-801 (accessed Feb. 5, 2025); **Exhibit 50**, https://support.apple.com/en-us/111853 (accessed Feb. 5, 2025); **Exhibit 51**, https://onsitego.com/blog/apple-watch-series-8s-s8-processor-same-cpu-s6-s7/ (last updated Sept. 15, 2022). Upon information and belief, TSMC imported, sold for importation, and/or sold within the United States after importation, into the United States, the TSMC Representative Articles.

96. Complainants believe that the TSMC Representative Articles are exemplary of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by TSMC, because such other devices feature the same or substantially similar infringing features, and/or are manufactured by similar infringing processes. Specifically, Complainants believe that: (1) the TSMC TMMU71 semiconductor die extracted from a TSMC semiconductor wafer (the "First TSMC Representative Article") is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by TSMC, that infringe the '847 and '292 Patents; (2) the TSMC TMLI30 semiconductor die extracted from a TSMC semiconductor wafer (the "Second TSMC Representative Article") is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by TSMC, that infringe the '473 Patent; and (3) the TSMC TMQG36 semiconductor die extracted from a TSMC semiconductor wafer (the "Third TSMC Representative Article") is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by TSMC, that infringe the '747 and '880 Patents. Accordingly, on information and

belief, numerous other devices that are covered by the Asserted Claims have been imported, sold for importation, or sold within the United States after importation, into the United States, by TSMC.

97. Pursuant to Commission Rule 210.12(a)(9)(x), **Exhibits 52C-54C** contain photographs of the respective TSMC Representative Articles.[7] Specifically, **Exhibit 53C** contains photographs of the First TSMC Representative Article; **Exhibit 54C** contains photographs of the Second Representative Article; and **Exhibit 52C** contains photographs of the Third TSMC Representative Article. As set forth below, the charts in **Exhibits 55C-59C** demonstrate that these TSMC Representative Articles violate Section 337.

**2. Infringement of the ’847 Patent**

98. **Exhibit 55**C includes a chart comparing independent claim 1 of the ’847 Patent to the First TSMC Representative Article as incorporated in the iPhone 13 smartphone (*i.e.*, the non-x86 semiconductor die incorporated in the Apple A15 Bionic integrated circuit). **Exhibit 55C** shows that the First TSMC Representative Article is covered by at least claim 1 of the ’847 Patent.

**3. Infringement of the ’473 Patent**

99. **Exhibit 56C** includes a chart comparing independent claim 1 of the ’473 Patent to the Second TSMC Representative Article as incorporated in the Apple Watch SE (2nd Gen) smartwatch (*i.e.*, the non-x86 semiconductor die incorporated in the Apple S8 SiP integrated circuit). **Exhibit 56C** shows that the Second TSMC Representative Article is covered by at least claim 1 of the ’473 Patent.

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[7] The TSMC Representative Articles are obscured by the housing of the Apple integrated circuits in the photographs taken by Complainants’ counsel. Complainants’ counsel has instead furnished an excerpt from a teardown report from Techinsights, which provides x-rays of the Apple integrated circuits and photographs of the underlying TSMC semiconductor die, which was extracted from a TSMC semiconductor wafer.

#### 4. Infringement of the ’747 Patent

100. **Exhibit 57C** includes a chart comparing independent claim 1 of the ’747 Patent to the Third TSMC Representative Article as incorporated in the iPhone 15 Pro smartphone (*i.e.*, the non-x86 semiconductor die incorporated in the Apple A17 Pro integrated circuit). **Exhibit 57C** shows that the Third TSMC Representative Article is covered by at least claim 1 of the ’747 Patent.

#### 5. Infringement of the ’292 Patent

101. **Exhibit 58C** includes a chart comparing independent claim 1, 9, and 15 of the ’292 Patent to the First TSMC Representative Article as incorporated in the iPhone 13 smartphone (*i.e.*, the non-x86 semiconductor die incorporated in the Apple A15 Bionic integrated circuit). **Exhibit 58C** shows that the First TSMC Representative Article is covered by at least claims 1, 9, and 15 of the ’292 Patent.

#### 6. Infringement of the ’880 Patent

102. **Exhibit 59C** includes a chart comparing independent claim 1 of the ’880 Patent to the Third TSMC Representative Article as incorporated in the iPhone 15 Pro smartphone (*i.e.*, the non-x86 semiconductor die incorporated in the Apple A17 Pro integrated circuit). **Exhibit 59C** shows that the Third TSMC Representative Article is covered by at least claim 1 of the ’880 Patent.

#### 7. Specific Instance of Sale and Importation

103. TSMC imports, sells for importation, and/or sells within the United States after importation, into the United States, the TSMC Representative Articles depicted in **Exhibits 52C-54C**.

104. As set forth below, each of the TSMC Representative Articles was imported as incorporated in the respective Apple Representative Articles that have been imported. *See* ¶¶ 120-122.

105. Moreover, on information and belief, all TSMC fabs capable of manufacturing at

TSMC's 3 nm, 5 nm, 6 nm, and/or 7 nm processes are located outside the United States (primarily in Taiwan). *See, e.g.*, **Exhibit 60**, https://www.tsmc.com/english/aboutTSMC/TSMC_Fabs (accessed Feb. 5, 2025). On information and belief, "despite CHIPS Act support," TSMC's only U.S. based fab— Fab 21 located in Phoenix, Arizona—"is now set to produce 4nm chips by mid-2025." *See, e.g.*, **Exhibit 61**, https://www.digitimes.com/news/a20250114PD213/us-chips-tsmc-intel-arizona-fab.html (Jan. 14, 2025). Furthermore, although TSMC also targeted manufacturing semiconductor devices at Fab 21 using its 5 nm process, as of January 14, 2025, this capability "faced delays but remains pivotal." *Id*. Therefore, upon information and belief, each of the TSMC Representative Articles, as incorporated in the Apple Representative Articles, were imported.

106. In addition, TSMC imports its infringing semiconductor devices directly into the United States in connection with its CyberShuttle and/or Multi-Project Wafer ("MPW") program. **Exhibit 62**, https://www.tsmc.com/english/dedicatedFoundry/services/cyberShuttle (accessed Feb. 5, 2025). TSMC's CyberShuttle program provides a "prototyping service [that] significantly reduces NRE costs by covering the widest technology range (from 0.5um to 7nm) and the most frequent launch schedule (up to 10 shuttles per month)." *Id.* Further, TSMC has a university program ("TSMC University FinFET Program") which "offers the industry's most successful fin field-effect transistor (FinFET) technologies with multi-project wafer (MPW) services and design collateral, for TSMC's 16-nanometer (16nm) and 7-nanometer (7nm) processes, covering both logic designs and radio frequency (RF) designs." **Exhibit 63**, https://www.tsmc.com/english/dedicatedFoundry/services/university_program (accessed Feb. 5, 2025).

107. Therefore, TSMC is violating Section 337 of the Tariff Act of 1930 by importing, selling for importation, and/or selling within the United States after importation, into the United

States, the TSMC Representative Articles, as well as other articles that infringe the Asserted Patents.

### B. Apple

#### 1. Representative Involved Articles

108. On information and belief, Apple is engaged in the design, manufacture, and importation, sale for importation, and/or sale within the United States after importation, into the United States, of articles that infringe literally or by equivalence at least the Asserted Claims.

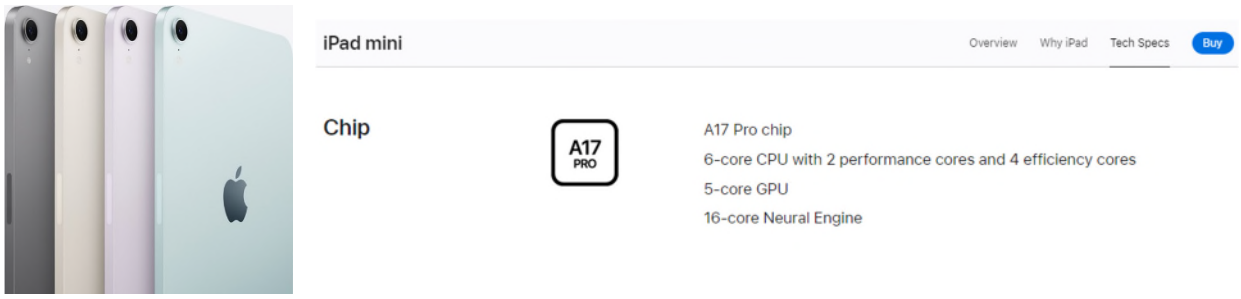
109. Pursuant to Commission Rule 210.12(a)(9)(viii), Complainants are required to chart "a representative involved article" of Apple that violates Section 337. Complainants have obtained the following Apple Representative Articles, each of which contains a printed circuit board subassembly that incorporates an integrated circuit, which incorporates a semiconductor die manufactured using TSMC's 7 nm or lower process nodes outside of the United States:

| Apple Representative Article | Integrated Circuit | TSMC Process Node |
|---|---|---|
| iPhone 13 smartphone | Apple A15 Bionic integrated circuit | 5 nm |
| Apple Watch SE (2nd Gen) smartwatch | Apple S8 SiP integrated circuit | 7 nm |
| iPhone 15 Pro smartphone | Apple A17 Pro integrated circuit | 3 nm |

**Exhibit 46**, https://support.apple.com/en-us/111829 (accessed Feb. 5, 2025); **Exhibit 47**, https://www.techinsights.com/blog/apple-apl1v02-a17-pro-processor-tsmc-3nm-finfet-process-advanced-cmos-essentials (accessed Feb. 5, 2025); **Exhibit 48**, https://support.apple.com/en-us/111872 (accessed Feb. 5, 2025); **Exhibit 49**, https://www.techinsights.com/products/ace-2109-801 (accessed Feb. 5, 2025); **Exhibit 50**, https://support.apple.com/en-us/111853 (accessed Feb. 5, 2025); **Exhibit 51**, https://onsitego.com/blog/apple-watch-series-8s-s8-processor-same-cpu-s6-s7/ (last updated Sept. 15, 2022). Upon information and belief, Apple imported, sold for importation, and/or sold within the United States after importation, into the United States, the

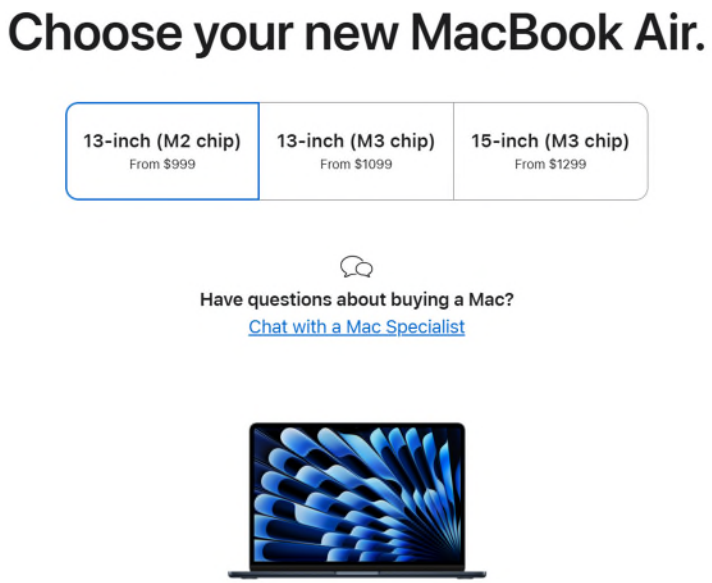
Apple Representative Articles.

110. Complainants believe that the Apple Representative Articles are exemplary of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by Apple, because such other devices feature the same or substantially similar infringing features, and/or are manufactured by similar infringing processes. For example, like one of the Apple Representative Articles (*i.e.*, the Apple iPhone 15 Pro smartphone), Apple's iPad mini tablet also contains an Apple A17 Pro chip—as does the iPhone 15 Pro smartphone—which is manufactured using proposed Respondent TSMC's infringing 3 nm process. **Exhibit 64**, https://www.apple.com/ipad-mini/specs/ (accessed Feb. 5, 2025); **Exhibit 47**, https://www.techinsights.com/blog/apple-apl1v02-a17-pro-processor-tsmc-3nm-finfet-process-advanced-cmos-essentials (accessed Feb. 5, 2025).




111. In addition, Apple's Macbook Air personal computer can be purchased with either an M2 integrated circuit chip (which, similar to the iPhone 13 smartphone Apple Representative Article, is manufactured using TSMC's 5 nm process node) or an M3 integrated circuit chip (which, similar to the iPhone 15 Pro smartphone Apple Representative Article, is manufactured using TSMC's 3 nm process node). **Exhibit 65**, https://www.apple.com/shop/buy-mac/macbook-air/13-inch-m2 (accessed Feb. 5, 2025); **Exhibit 66**, https://www.production-expert.com/production-expert-1/apple-silicon-m2-what-we-know-so-far (June 13, 2022); **Exhibit 67**, https://www.tomshardware.com/software/macos/apple-spent-dollar1-billion-to-tape-out-new-m3-

processors-analyst (Nov. 3, 2023).




112. Specifically, Complainants believe that: (1) the Apple iPhone 13 smartphone (the "First Apple Representative Article") is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by Apple, that infringe the '847 and '292 Patents; (2) the Apple Watch SE (2nd Gen) smartwatch (the "Second Apple Representative Article") is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by Apple, that infringe the '473 Patent; and (3) the Apple iPhone 15 Pro smartphone (the "Third Apple Representative Article") is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by Apple, that infringe the '747 and '880 Patents. Accordingly, on information and belief, numerous other devices that are covered by the Asserted Claims have been imported, sold for importation, or sold within the United States after importation, into the United States, by Apple.

113. Pursuant to Commission Rule 210.12(a)(9)(x), **Exhibits 68-70** contain photographs

of the respective Apple Representative Articles. Specifically, **Exhibit 69** contains photographs of the First Apple Representative Article, *i.e.*, the iPhone 13 smartphone; **Exhibit 70** contains photographs of the Second Apple Representative Article, *i.e.*, the Apple Watch SE (2nd Gen) smartwatch; and **Exhibit 68** contains photographs of the Third Apple Representative Article, *i.e.*, the iPhone 15 Pro smartphone. As set forth below, the charts in **Exhibits 55C-59C** demonstrate that these Apple Representative Articles violate Section 337.[8]

**2. Infringement of the ’847 Patent**

114. **Exhibit 55C** includes a chart comparing independent claim 1 of the ’847 Patent to the First Apple Representative Article (*i.e.*, the iPhone 13 smartphone). **Exhibit 55C** shows that the First Apple Representative Article is covered by at least claim 1 of the ’847 Patent.

**3. Infringement of the ’473 Patent**

115. **Exhibit 56C** includes a chart comparing independent claim 1 of the ’473 Patent to the Second Apple Representative Article (*i.e.*, the Apple Watch SE (2nd Gen) smartwatch). **Exhibit 56C** shows that the Second Apple Representative Article is covered by at least claim 1 of the ’473 Patent.

**4. Infringement of the ’747 Patent**

116. **Exhibit 57C** includes a chart comparing independent claim 1 of the ’747 Patent to the Third Apple Representative Article (*i.e.*, the iPhone 15 Pro smartphone). **Exhibit 57C** shows that the Third Apple Representative Article is covered by at least claim 1 of the ’747 Patent.

**5. Infringement of the ’292 Patent**

117. **Exhibit 58C** includes a chart comparing independent claim 1, 9, and 15 of the ’292

[8] As set forth above, **Exhibits 55C-59C** also demonstrate that the TSMC Representative Articles, which are incorporated into the Apple Representative Articles, violate Section 337.

Patent to the First Apple Representative Article (*i.e.*, the iPhone 13 smartphone). **Exhibit 58C** shows that the First Apple Representative Article is covered by at least claims 1, 9, and 15 of the ’292 Patent.

**6. Infringement of the ’880 Patent**

118. **Exhibit 59C** includes a chart comparing independent claim 1 of the ’880 Patent to the Third Apple Representative Articles (*i.e.*, the iPhone 15 Pro smartphone). **Exhibit 59C** shows that the Third Apple Representative Article is covered by at least claim 1 of the ’880 Patent.

**7. Specific Instance of Sale and Importation**

119. Apple imports, sells for importation, and/or sells within the United States after importation, into the United States, the Apple Representative Articles depicted in **Exhibits 68-70**.

120. Pursuant to Commission Rule 210.12(a)(3), **Exhibit 72** contains the receipt showing a sale of the First Apple Representative Article (*i.e.*, the iPhone 13 smartphone, which incorporates the Apple A15 Bionic integrated circuit), within the United States after importation into the United States. Complainants’ counsel purchased an iPhone 13 smartphone online in the United States from Best Buy for shipment to its office in Boston, MA. **Exhibit 72**. The shipping history of this product shows that Best Buy shipped the iPhone 13 smartphone via local driver delivery through the Roadie delivery services, and the product arrived in the Boston, MA office of Complainants’ counsel on Jan. 8, 2025. *Id.* Upon receipt of the First Apple Representative Article, Complainants’ counsel photographed the packaging, which shows that the iPhone 13 smartphone was “Assembled in China.” **Exhibit 69**. Therefore, the First Apple Representative Article was imported.

121. Pursuant to Commission Rule 210.12(a)(3), **Exhibit 73** contains the receipt showing a sale of the Second Apple Representative Article (*i.e.*, the Apple Watch SE (2nd Gen) smartwatch, which incorporates the Apple S8 SiP integrated circuit), within the United States after

importation into the United States. Complainants' counsel purchased an Apple Watch SE (2nd Gen) smartwatch online in the United States from Apple for shipment to its office in Boston, MA. **Exhibit 73**. The shipping history of this product shows that Apple shipped the Apple Watch SE (2nd Gen) smartwatch from its warehouse located in Louisville, KY, and the product arrived in Boston, MA on Jan. 14, 2025. *Id.* Upon receipt of the Second Apple Representative Article, Complainants' counsel photographed the packaging, which shows that the Apple Watch SE (2nd Gen) smartwatch was "Made in Vietnam." **Exhibit 70**. Therefore, the Second Apple Representative Article was imported.

122. Pursuant to Commission Rule 210.12(a)(3), **Exhibit 71** contains the receipt showing a sale of the Third Apple Representative Article (*i.e.*, the iPhone 15 Pro smartphone, which incorporates the Apple A17 Pro integrated circuit), within the United States after importation into the United States. Complainants' counsel purchased an iPhone 15 Pro smartphone online in the United States from Total Wireless for shipment to its office in Boston, MA. **Exhibit 71**. The shipping history of this product shows that Total Wireless shipped the iPhone 15 Pro smartphone from its warehouse located in Plainfield, IN, and the product arrived in Boston, MA on January 10, 2025. *Id.* Upon receipt of the Third Apple Representative Article, Complainants' counsel photographed the packaging, which shows that the iPhone 15 Pro smartphone was "Assembled in India." **Exhibit 68**. Therefore, the Third Apple Representative Article was imported.

123. Therefore, Apple is violating Section 337 of the Tariff Act of 1930 by importing, selling for importation, and/or selling within the United States after importation, into the United States, the Apple Representative Articles, as well as other articles that infringe the Asserted Patents.

### C. Broadcom

#### 1. Representative Involved Articles

124. On information and belief, Broadcom is engaged in the design, manufacture, and

importation, sale for importation, and/or sale within the United States after importation, into the United States, of articles that infringe literally or by equivalence at least the Asserted Claims.

125. Pursuant to Commission Rule 210.12(a)(9)(viii), Complainants are required to chart "a representative involved article" of Broadcom that violates Section 337. Complainants have obtained the following Broadcom Representative Articles:

| **Broadcom Representative Article** | **Integrated Circuit** | **TSMC Process Node** |
|---|---|---|
| Broadcom BCM957608 network unit | Broadcom BCM57608 chip | 5 nm |
| Broadcom BCM4399 semiconductor die (as contained in, *e.g.*, iPhone 16 Pro Max) | Broadcom BCM4399 semiconductor die packaged in a Universal Scientific (USI) USI 339S01463 Wi-Fi 7/BT 5.4 Combo integrated circuit | 7 nm |

126. The first Broadcom Representative Article (BCM957608 network unit) ("First Broadcom Representative Article") is a system containing a printed circuit board subassembly that incorporates a Broadcom BCM57608 integrated circuit, which contains a semiconductor die manufactured using TSMC's 5 nm process node outside of the United States. The second Broadcom Representative Article (BCM4399 semiconductor die) ("Second Representative Broadcom Product") is a standalone integrated circuit sold to Apple for incorporation in Apple's iPhone 16 Pro Max smartphone, and contains a semiconductor die manufactured using TSMC's 7 nm process node. *See, e.g.*, **Exhibit 74**, https://www.techinsights.com/blog/broadcom-bcm4399y-wi-fi-7bt-54-combo-soc-floorplan-analysis (accessed Feb. 5, 2025). Upon information and belief, Broadcom imported, sold for importation, and/or sold within the United States after importation, into the United States, the Broadcom Representative Articles.

127. Complainants believe that: (1) the First Broadcom Representative Article is representative of numerous other articles imported into the United States, sold for importation into

the United States, or sold within the United States after importation by Broadcom, that infringe the ’847 and ’292 Patents; and (2) the Second Broadcom Representative Article is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by Broadcom, that infringe the ’473 Patent.

128. Complainants believe that the Broadcom Representative Articles are exemplary of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by Broadcom, because such other devices feature the same or substantially similar infringing features, and/or are manufactured by similar infringing processes. For example, as discussed in ¶ 27 *supra*, the Broadcom Tomahawk 5 (part # BCM78900) and Tomahawk 4 (part # BCM56990) integrated circuits incorporate non-x86 semiconductor dies manufactured outside of the United States using TSMC’s 5 nm and 7 nm process nodes, respectively. Broadcom displayed and demonstrated its Tomahawk 4 integrated circuit co-packaged with optical engines onto a standalone circuit card, which Broadcom refers to as its “co-packaged optics” or “CPO” product. **Exhibit 35**, https://www.servethehome.com/awesome-broadcom-co-packaged-optics-and-silicon-photonics-ocp-summit-2022/ (Oct. 21, 2022). Specifically, upon information and belief, Broadcom’s CPO solution comprises a standalone circuit card “substrate” that connects Broadcom’s application-specific integrated circuits, such as the Tomahawk 4, to one or more discrete optical engines. **Exhibit 36** (Broadcom Presentation “Optical Interconnects for AI: Components and Co-Packaged Optics (CPO)”) at 11 (available at https://docs.broadcom.com/doc/optical-interconnects-for-ai-2024 (accessed Feb. 5, 2025)). On information and belief, Broadcom also showcased several of these products at the 2024 OCP Summit in San Jose, California. **Exhibit 37**, https://www.broadcom.com/company/news/product-releases/62611 (Oct. 8, 2024).

129. Accordingly, on information and belief, numerous other devices that are covered by the Asserted Claims have been imported, sold for importation, or sold within the United States after importation, into the United States, by Broadcom.

130. Pursuant to Commission Rule 210.12(a)(9)(x), **Exhibit 75** contains photographs of the First Broadcom Representative Article, *i.e.*, the Broadcom BCM957608 network unit system; and **Exhibit 76C** contains photographs of the Second Broadcom Representative Article, *i.e.*, the Broadcom BCM4399 semiconductor die contained in the iPhone 16 Pro Max smartphone. As set forth below, the charts in **Exhibits 77C-79C** demonstrate that these Broadcom Representative Articles violate Section 337.

**2. Infringement of the ’847 Patent**

131. **Exhibit 77C** includes a chart comparing independent claim 1 of the ’847 Patent to the First Broadcom Representative Article (*i.e.*, the BCM957608 network unit system). **Exhibit 77C** shows that the First Broadcom Representative Article is covered by at least claim 1 of the ’847 Patent.

**3. Infringement of the ’473 Patent**

132. **Exhibit 78C** includes a chart comparing independent claim 1 of the ’473 Patent to the Second Broadcom Representative Article (*i.e.*, the BCM4399 semiconductor die contained in the iPhone 16 Pro Max). **Exhibit 78C** shows that the Second Broadcom Representative Article is covered by at least claim 1 of the ’473 Patent.

**4. Infringement of the ’292 Patent**

133. **Exhibit 79C** includes a chart comparing independent claim 1, 9, and 15 of the ’292 Patent to the First Broadcom Representative Article (*i.e.*, the BCM957608 network unit system). **Exhibit 79C** shows that the First Broadcom Representative Article is covered by at least claims 1, 9, and 15 of the ’292 Patent.

### 5. Specific Instance of Sale and Importation

134. Broadcom imports, sells for importation, and/or sells within the United States after importation, into the United States, the Broadcom Representative Articles depicted in **Exhibits 75-76C**.

135. Pursuant to Commission Rule 210.12(a)(3), **Exhibit 80** contains the receipt showing a sale of the First Broadcom Representative Article (*i.e.*, the Broadcom BCM957608 network unit system), within the United States after importation into the United States. Complainants' counsel purchased a BCM957608 network unit system online in the United States from FS.com for shipment to its office in Boston, MA. **Exhibit 80**. The shipping history of this product shows that FS.com shipped the BCM957608 network unit system from its warehouse located in New Castle, DE, and the product arrived in Boston, MA on Jan. 13, 2025. *Id.* Upon receipt of the First Broadcom Representative Article, Complainants' counsel photographed the packaging, which shows that the BCM957608 network unit system was "Made in Vietnam." **Exhibit 75**. Therefore, the First Broadcom Representative Article was imported.

136. Pursuant to Commission Rule 210.12(a)(3), **Exhibit 81** contains the receipt showing a sale of the Second Broadcom Representative Article (*i.e.*, the BCM4399 semiconductor die contained in the iPhone 16 Pro Max smartphone), within the United States after importation into the United States. Complainants' counsel purchased an iPhone 16 Pro Max smartphone online in the United States from Apple on January 8, 2025 for shipment to its office in Boston, MA. **Exhibit 81**. The shipping history of this product shows that Apple shipped the iPhone 16 Pro Max smartphone from its warehouse located in Carlisle, PA, and the product arrived in Boston, MA on Jan. 9, 2025. *Id.* Upon receipt of the Second Broadcom Representative Article, Complainants' counsel photographed the packaging of the iPhone 16 Pro Max smartphone, which shows that it was "Assembled in China," thereby evidencing the incorporation of the Second Broadcom

Representative Article (*i.e.*, the BCM4399 semiconductor die contained in the iPhone 16 Pro Max smartphone) into the iPhone 16 Pro Max smartphone prior to its importation into the United States. **Exhibit 76C**.

137. Complainants' counsel also photographed the Second Broadcom Representative Article (*i.e.*, the BCM4399 semiconductor die incorporated in the USI 339S01463 integrated circuit) incorporated in the iPhone 16 Pro Max smartphone.[9] **Exhibit 76C**. The semiconductor die incorporated in the BCM4399 semiconductor die was manufactured by TSMC using its 7 nm process node. *See, e.g.*, **Exhibit 74**, https://www.techinsights.com/blog/broadcom-bcm4399y-wi-fi-7bt-54-combo-soc-floorplan-analysis (accessed Feb. 5, 2025). Upon information and belief, TSMC does not manufacture semiconductor devices using the 7 nm process node in the United States. *See, e.g.*, **Exhibit 60**, https://www.tsmc.com/english/aboutTSMC/TSMC_Fabs (accessed Feb. 5, 2025). Therefore, the Second Broadcom Representative Article was imported.

138. Therefore, Broadcom is violating Section 337 of the Tariff Act of 1930 by importing, selling for importation, and/or selling within the United States after importation, into the United States, the Broadcom Representative Articles, as well as other articles that infringe the Asserted Patents.

### D. Lenovo

#### 1. Representative Involved Articles

139. On information and belief, Lenovo is engaged in the design, manufacture, and importation, sale for importation, and/or sale within the United States after importation, into the

[9] The BCM4399 semiconductor die is obscured by the housing of the USI 339S01463 integrated circuit in the photographs taken by Complainants' counsel. Complainants' counsel has also furnished an excerpt from a teardown report from Techinsights, which provides an x-ray of the USI 339S01463 integrated circuit and photograph of the underlying BCM4399 semiconductor die.

United States, of articles that infringe literally or by equivalence at least the Asserted Claims.

140. Pursuant to Commission Rule 210.12(a)(9)(viii), Complainants are required to chart "a representative involved article" of Lenovo that violates Section 337. Complainants have obtained the following Lenovo Representative Articles:

| Lenovo Representative Article | Integrated Circuit | TSMC Process Node |
|---|---|---|
| Yoga Slim 7x computer | Qualcomm Snapdragon X Elite | 4 nm |
| Moto G Play smartphone | Qualcomm Snapdragon 680 4G | 6 nm |

*See, e.g.*, **Exhibit 82,** https://www.anandtech.com/show/21445/qualcomm-snapdragon-x-architecture-deep-dive (June 13, 2024); **Exhibit 83**, https://www.tomshardware.com/news/snapdragon-x-elite-outperforms-intel-amd-apple-cpus-in-vendor-benchmarks (Oct. 23, 2023); **Exhibit 84**, https://www.notebookcheck.net/Qualcomm-Snapdragon-X-Elite-X1E-78-100-Processor-Benchmarks-and-Specs.838568.0.html (accessed Feb. 12, 2025); **Exhibit 85**, https://www.gsmarena.com/motorola_moto_g_play_(2024)-12798.php (accessed Feb. 12, 2025); **Exhibit 86**, https://www.gizmochina.com/2021/09/11/new-qualcomm-mid-range-chips-on-the-way-will-support-144hz-refresh-rate/ (Sept. 11, 2021); **Exhibit 87**, https://www.qualcomm.com/products/mobile/snapdragon/smartphones/snapdragon-6-series-mobile-platforms/snapdragon-680-4g-mobile-platform (accessed Feb. 5, 2025). Upon information and belief, Lenovo imported, sold for importation, and/or sold within the United States after importation, into the United States, the Lenovo Representative Articles.

141. The first Lenovo Representative Article (Lenovo Yoga Slim 7x computer) ("First Lenovo Representative Article") is a computer containing a printed circuit board subassembly that incorporates a Qualcomm Snapdragon X Elite integrated circuit, which contains a semiconductor die manufactured using TSMC's 4 nm process node outside of the United States. *See e.g.*, **Exhibits 84** and **88**. The second Lenovo Representative Article (Moto G Play smartphone) ("Second

Representative Lenovo Article") is a smartphone containing a printed circuit board subassembly that incorporates a Qualcomm Snapdragon 680 4G integrated circuit, which contains a semiconductor die manufactured using TSMC's 6 nm process node outside of the United States. *See, e.g.*, **Exhibit 85-87** and **89**. Upon information and belief, Lenovo imported, sold for importation, and/or sold within the United States after importation, into the United States, the Lenovo Representative Articles.

142. Complainants believe that the First Lenovo Representative Article is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by Lenovo, that infringe the '847 and '292 Patents; and (2) the Second Lenovo Representative Article is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by Lenovo, that infringe the '473 Patent.

143. Complainants believe that the Lenovo Representative Articles are exemplary of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by Lenovo, because such other devices feature the same or substantially similar infringing features, and/or are manufactured by similar infringing processes. Accordingly, on information and belief, numerous other devices that are covered by the Asserted Claims have been imported, sold for importation, or sold within the United States after importation, into the United States, by Lenovo.

144. Pursuant to Commission Rule 210.12(a)(9)(x), **Exhibit 88** contains photographs of the First Lenovo Representative Article, *i.e.*, the Lenovo Yoga Slim 7x computer; and **Exhibit 89** contains photographs of the Second Lenovo Representative Article, *i.e.*, the Motorola Moto G Play smartphone. As set forth below, the charts in **Exhibits 90C-92C** demonstrate that these Lenovo

Representative Articles violate Section 337.

**2. Infringement of the ’847 Patent**

145. **Exhibit 90C** includes a chart comparing independent claim 1 of the ’847 Patent to the First Lenovo Representative Article (*i.e.*, the Lenovo Yoga Slim 7x personal computer). **Exhibit 90C** shows that the First Lenovo Representative Article is covered by at least claim 1 of the ’847 Patent.

**3. Infringement of the ’473 Patent**

146. **Exhibit 91C** includes a chart comparing independent claim 1 of the ’473 Patent to the Second Lenovo Representative Article (*i.e.*, the Motorola Moto G Play smartphone). **Exhibit 91C** shows that the Second Lenovo Representative Article is covered by at least claim 1 of the ’473 Patent.

**4. Infringement of the ’292 Patent**

147. **Exhibit 92C** includes a chart comparing independent claim 1, 9, and 15 of the ’292 Patent to the Third Lenovo Representative Article (*i.e.*, the Lenovo Yoga Slim 7x personal computer). **Exhibit 92C** shows that the Third Lenovo Representative Article is covered by at least claims 1, 9, and 15 of the ’292 Patent.

**5. Specific Instance of Sale and Importation**

148. Lenovo imports, sells for importation, and/or sells within the United States after importation, into the United States, the Lenovo Representative Articles depicted in **Exhibits 88-89**.

149. Pursuant to Commission Rule 210.12(a)(3), **Exhibit 93** contains the receipt showing a sale of the First Lenovo Representative Article (*i.e.*, the Lenovo Yoga Slim 7x personal computer), within the United States after importation into the United States. Complainants’ counsel purchased a Lenovo Yoga Slim 7x computer containing the Qualcomm Snapdragon X

Elite integrated circuit online in the United States from Lenovo for pickup in Burlington, MA. **Exhibit 93**. Upon receipt of the First Lenovo Representative Article, Complainants' counsel photographed the packaging of the Lenovo Yoga Slim 7x personal computer, which shows that it was "Made in China." **Exhibit 88.** Therefore, the First Lenovo Representative Article was imported.

150. According to TSMC, its only U.S. based fab—Fab 21 located in Phoenix, Arizona—is expected to come online in mid-2025, at which time it will begin the production of semiconductor devices only using its 4 nm process node. *See, e.g.*, **Exhibit 94**, https://www.tsmc.com/static/abouttsmcaz/index.htm (accessed Jan. 29, 2025); **Exhibit 61**, https://www.digitimes.com/news/a20250114PD213/us-chips-tsmc-intel-arizona-fab.html (Jan. 14, 2025) (noting that TSMC's Fab 21 "is now set to produce 4nm chips by mid-2025"). The packaging of the Lenovo Yoga Slim 7x personal computer indicates that it was "Manufactured for Lenovo" on December 2, 2024, which is prior to the opening of TSMC's Fab 21 for production. *Id.*; **Exhibit 88.** Therefore, the semiconductor die in the Qualcomm Snapdragon X Elite integrated circuit incorporated in the First Lenovo Representative Article was made outside of the United States using TSMC's 4 nm process node, and was imported.

151. Pursuant to Commission Rule 210.12(a)(3), **Exhibit 95** contains the receipt showing a sale of the Second Lenovo Representative Article (*i.e.*, the Motorola Moto G Play smartphone), within the United States after importation into the United States. Complainants' counsel purchased a Motorola Moto G Play smartphone containing the Qualcomm Snapdragon 680 4G integrated circuit online in the United States from Motorola for shipment to its office in Boston, MA. **Exhibit 95**. The shipping history of this product shows that Lenovo's subsidiary, Motorola, shipped the Motorola Moto G Play smartphone from its warehouse located in Mebane,

NC, and the product arrived in Boston, MA on Jan. 9, 2025. *Id.* Upon receipt of the Second Lenovo Representative Article, Complainants' counsel photographed the packaging of the Motorola Moto G Play smartphone, which shows that it was "Made in China." **Exhibit 89**. Therefore, the Second Lenovo Representative Article was imported.

152. Moreover, on information and belief, all TSMC fabs capable of manufacturing at TSMC's infringing 6 nm process are located outside the United States (primarily in Taiwan). *See, e.g.*, **Exhibit 60**, https://www.tsmc.com/english/aboutTSMC/TSMC_Fabs (accessed Feb. 5, 2025). Therefore, the semiconductor die in the Qualcomm Snapdragon 680 4G integrated circuit incorporated in the Second Lenovo Representative Article was made outside of the United States using TSMC's 6 nm process node, and was imported.

153. Therefore, Lenovo is violating Section 337 of the Tariff Act of 1930 by importing, selling for importation, and/or selling within the United States after importation, into the United States, the Lenovo Representative Articles, as well as other articles that infringe the Asserted Patents.

### E. OnePlus

#### 1. Representative Involved Articles

154. On information and belief, OnePlus is engaged in the design, manufacture, and importation, sale for importation, and/or sale within the United States after importation, into the United States, of articles that infringe literally or by equivalence at least the Asserted Claims.

155. Pursuant to Commission Rule 210.12(a)(9)(viii), Complainants are required to chart "a representative involved article" of OnePlus that violates Section 337. Complainants have obtained the following OnePlus Representative Articles:

| OnePlus Representative Article | Integrated Circuit | TSMC Process Node |
|---|---|---|
| OnePlus 13R | Qualcomm Snapdragon 8 Gen 3 | 4 nm |
| OnePlus Nord N30 5G | Qualcomm Snapdragon 695 5G | 6 nm |
| OnePlus 13 | Qualcomm Snapdragon 8 Elite | 3 nm |

*See, e.g.*, **Exhibit 40**, https://www.oneplus.com/us/oneplus-13 (accessed Feb. 12, 2025); **Exhibit 96**, https://nsaneforums.com/news/mobile-news/qualcomm-announces-snapdragon-8-elite-flagship-smartphone-soc-with-major-improvements-r26125/ (accessed Feb. 12, 2025); **Exhibit 97** (Qualcomm Snapdragon 8 Elite Mobile Platform Product Brief); **Exhibit 98**, https://www.oneplus.com/us/oneplus-13r (accessed Feb. 12, 2025); **Exhibit 99**, https://www.xda-developers.com/qualcomm-snapdragon-8-gen-3-tsmc-4nm-process/ (Oct. 24, 2023); **Exhibit 100** (Qualcomm Snapdragon 8 Gen 3 Product Brief); **Exhibit 41**, https://www.oneplus.com/us/oneplus-n30-5g (accessed Feb. 12, 2025); **Exhibit 101**, https://www.anandtech.com/show/17560/qualcomm-unveils-snapdragon-6-gen-1-and-4-gen-1-socs (accessed Feb. 12, 2025); **Exhibit 102** (Qualcomm Snapdragon 695 5G Mobile Platform Product Brief). Upon information and belief, OnePlus imported, sold for importation, and/or sold within the United States after importation, into the United States, the OnePlus Representative Articles.

156. Complainants believe that the OnePlus Representative Articles are exemplary of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by OnePlus, because such other devices feature the same or substantially similar infringing features, and/or are manufactured by similar infringing processes. Specifically, Complainants believe that: (1) the OnePlus 13R smartphone (the "First OnePlus Representative Article") is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by OnePlus, that infringe the '847 and '292 Patents; (2) the OnePlus Nord 30 5G

smartphone (the "Second OnePlus Representative Article") is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by OnePlus, that infringe the '473 Patent; and (3) the OnePlus 13 smartphone (the "Third OnePlus Representative Article") is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by OnePlus, that infringe the '747 and '880 Patents. Accordingly, on information and belief, numerous other devices that are covered by the Asserted Claims have been imported, sold for importation, or sold within the United States after importation, into the United States, by OnePlus. Pursuant to Commission Rule 210.12(a)(9)(x), **Exhibits 103-105** contain photographs of the respective OnePlus Representative Articles. Specifically, pursuant to Commission Rule 210.12(a)(9)(x), **Exhibit 104** contains photographs of the First OnePlus Representative Article, *i.e.*, the OnePlus 13R smartphone; **Exhibit 105** contains photographs of the Second OnePlus Representative Article, *i.e.*, the OnePlus Nord N30 5G smartphone; and **Exhibit 103** contains photographs of the Third OnePlus Representative Article, *i.e.*, the OnePlus 13 smartphone. As set forth below, the charts in **Exhibits 106C-110C** demonstrate that these OnePlus Representative Articles violate Section 337.

**2. Infringement of the '847 Patent**

157. **Exhibit 106C** includes a chart comparing independent claim 1 of the '847 Patent to the First OnePlus Representative Article (*i.e.*, the OnePlus 13R smartphone). **Exhibit 106C** shows that the First OnePlus Representative Article is covered by at least claim 1 of the '847 Patent.

**3. Infringement of the '473 Patent**

158. **Exhibit 107C** includes a chart comparing independent claim 1 of the '473 Patent to the Second OnePlus Representative Article (*i.e.*, the OnePlus Nord N30 5G smartphone). **Exhibit 107C** shows that the Second OnePlus Representative Article is covered by at least claim

1 of the ’473 Patent.

**4. Infringement of the ’747 Patent**

159. **Exhibit 108C** includes a chart comparing independent claim 1 of the ’747 Patent to the Third OnePlus Representative Article (*i.e.*, the OnePlus 13 smartphone). **Exhibit 108C** shows that the Third OnePlus Representative Article is covered by at least claim 1 of the ’747 Patent.

**5. Infringement of the ’292 Patent**

160. **Exhibit 109C** includes a chart comparing independent claim 1, 9, and 15 of the ’292 Patent to the First OnePlus Representative Article (*i.e.*, the OnePlus 13R smartphone). **Exhibit 109C** shows that the First OnePlus Representative Article is covered by at least claims 1, 9, and 15 of the ’292 Patent.

**6. Infringement of the ’880 Patent**

161. **Exhibit 110C** includes a chart comparing independent claim 1 of the ’880 Patent to the Third OnePlus Representative Article (*i.e.*, the OnePlus 13 smartphone). **Exhibit 110C** shows that the Third OnePlus Representative Article is covered by at least claim 1 of the ’880 Patent.

**7. Specific Instance of Sale and Importation**

162. OnePlus imports, sells for importation, and/or sells within the United States after importation, into the United States, the OnePlus Representative Articles depicted in **Exhibits 103-105**.

163. Pursuant to Commission Rule 210.12(a)(3), **Exhibit 112** contains the receipt showing a sale of the First OnePlus Representative Article (*i.e.*, the OnePlus 13R smartphone, which incorporates the Qualcomm Snapdragon 8 Gen 3 integrated circuit), within the United States after importation into the United States. Complainants’ counsel purchased a OnePlus 13R

smartphone online in the United States from Best Buy for pickup in Saugus, MA. **Exhibit 112**. Upon receipt of the First OnePlus Representative Article, Complainants' counsel photographed the packaging of the OnePlus 13R smartphone, which shows that it was "Made in China." **Exhibit 104**. Therefore, the First OnePlus Representative Article was imported.

164. Pursuant to Commission Rule 210.12(a)(3), **Exhibit 113** contains the receipt showing a sale of the Second OnePlus Representative Article (*i.e.*, the OnePlus Nord N30 5G smartphone, which incorporates the Qualcomm Snapdragon 695 5G integrated circuit), within the United States after importation into the United States. Complainants' counsel purchased a OnePlus Nord N30 5G smartphone online in the United States from Best Buy for pickup in Burlington, MA. **Exhibit 113**. Upon receipt of the Second OnePlus Representative Article, Complainants' counsel photographed the packaging of the OnePlus Nord N30 5G smartphone, which shows that it was "Made in China." **Exhibit 105**. Therefore, the Second OnePlus Representative Article was imported.

165. Pursuant to Commission Rule 210.12(a)(3), **Exhibit 111** contains the receipt showing a sale of the Third OnePlus Representative Article (*i.e.*, the OnePlus 13 smartphone, which incorporates the Qualcomm Snapdragon 8 Elite integrated circuit), within the United States after importation into the United States. Complainants' counsel purchased a OnePlus 13 smartphone online in the United States from Best Buy for pickup in Everett, MA. **Exhibit 111**. Upon receipt of the Third OnePlus Representative Article, Complainants' counsel photographed the packaging of the OnePlus 13 smartphone, which shows that it was "Made in China." **Exhibit 103**. Therefore, the Third OnePlus Representative Article was imported.

166. Therefore, OnePlus is violating Section 337 of the Tariff Act of 1930 by importing, selling for importation, and/or selling within the United States after importation, into the United

States, the OnePlus Representative Articles, as well as other articles that infringe the Asserted Patents.

### F. Qualcomm

#### 1. Representative Involved Articles

167. On information and belief, Qualcomm is engaged in the design, manufacture, and importation, sale for importation, and/or sale within the United States after importation, into the United States, of articles that infringe literally or by equivalence at least the Asserted Claims.

168. Pursuant to Commission Rule 210.12(a)(9)(viii), Complainants are required to chart "a representative involved article" of Qualcomm that violates Section 337. Complainants have obtained the following Qualcomm Representative Articles:

| Qualcomm Representative Article | Integrated Circuit | TSMC Process Node |
|---|---|---|
| Qualcomm Snapdragon X Elite integrated circuit (as contained in, *e.g.*, Lenovo Yoga Slim 7x) | Qualcomm Snapdragon X Elite | 4 nm |
| Qualcomm Snapdragon 680 4G integrated circuit (as contained in, *e.g.*, Motorola Moto G Play) | Qualcomm Snapdragon 680 4G | 6 nm |
| Qualcomm Snapdragon 8 Elite integrated circuit (as contained in, *e.g.*, OnePlus 13) | Qualcomm Snapdragon 8 Elite | 3 nm |

*See, e.g.*, **Exhibit 40**, https://www.oneplus.com/us/oneplus-13 (accessed Feb. 12, 2025); **Exhibit 96**, https://nsaneforums.com/news/mobile-news/qualcomm-announces-snapdragon-8-elite-flagship-smartphone-soc-with-major-improvements-r26125/ (accessed Feb. 12, 2025); **Exhibit 97** (Qualcomm Snapdragon 8 Elite Mobile Platform Product Brief); **Exhibit 82,** https://www.anandtech.com/show/21445/qualcomm-snapdragon-x-architecture-deep-dive (June 13, 2024); **Exhibit 83**, https://www.tomshardware.com/news/snapdragon-x-elite-outperforms-intel-amd-apple-cpus-in-vendor-benchmarks (Oct. 23, 2023); **Exhibit 84**, https://www.notebookcheck.net/Qualcomm-Snapdragon-X-Elite-X1E-78-100-Processor-Benchmarks-and-Specs.838568.0.html (accessed Feb. 12, 2025); **Exhibit 85**,

https://www.gsmarena.com/motorola_moto_g_play_(2024)-12798.php (accessed Feb. 12, 2025); **Exhibit 86**, https://www.gizmochina.com/2021/09/11/new-qualcomm-mid-range-chips-on-the-way-will-support-144hz-refresh-rate/ (Sept. 11, 2021); **Exhibit 87,** https://www.qualcomm.com/products/mobile/snapdragon/smartphones/snapdragon-6-series-mobile-platforms/snapdragon-680-4g-mobile-platform (accessed Feb. 5, 2025). Upon information and belief, Qualcomm imported, sold for importation, and/or sold within the United States after importation, into the United States, the Qualcomm Representative Articles.

169. Complainants believe that the Qualcomm Representative Articles are exemplary of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by Qualcomm, because such other devices feature the same or substantially similar infringing features, and/or are manufactured by similar infringing processes. Specifically, Complainants believe that: (1) the Qualcomm Snapdragon X Elite integrated circuit (the "First Qualcomm Representative Article") is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by Qualcomm, that infringe the '847 and '292 Patents; (2) the Qualcomm Snapdragon 680 4G integrated circuit (the "Second Qualcomm Representative Article") is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by Qualcomm, that infringe the '473 Patent; and (3) the Qualcomm Snapdragon 8 Elite integrated circuit (the "Third Qualcomm Representative Article") is representative of numerous other articles imported into the United States, sold for importation into the United States, or sold within the United States after importation by Qualcomm, that infringe the '747 and '880 Patents. Accordingly, on information and belief, numerous other devices that are covered by the Asserted Claims have

been imported, sold for importation, or sold within the United States after importation, into the United States, by Qualcomm.

170. Pursuant to Commission Rule 210.12(a)(9)(x), **Exhibits 82-83 and 103** contain photographs of the respective Qualcomm Representative Articles. Specifically, pursuant to Commission Rule 210.12(a)(9)(x), **Exhibit 88** contains photographs of the First Qualcomm Representative Article, *i.e.*, the Qualcomm Snapdragon X Elite integrated circuit;[10] **Exhibit 89** contains photographs of the Second Qualcomm Representative Article, *i.e.*, the Qualcomm Snapdragon 680 4G integrated circuit;[11] and **Exhibit 103** contains photographs of the Third Qualcomm Representative Article, *i.e.*, the Qualcomm Snapdragon 8 Elite integrated circuit.[12]

171. As set forth below, the charts in **Exhibits 84C-86C**, **108C**, and **110C** demonstrate that these Qualcomm Representative Articles violate Section 337.[13]

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[10] The First Representative Qualcomm Article, as depicted in **Exhibit 88**, is not marked to indicate that it is a Qualcomm Snapdragon X Elite integrated circuit. **Exhibit 88** at 23. Complainants have provided screenshots of the system configuration settings of the Lenovo Yoga Slim 7x computer, in which the First Representative Qualcomm Article is incorporated, showing that the First Representative Qualcomm Article is a Qualcomm Snapdragon X Elite integrated circuit. **Exhibit 88** at 14.

[11] The Second Representative Qualcomm Article as depicted in **Exhibit 89** is marked as a Qualcomm SM6225 integrated circuit. **Exhibit 89** at 15. SM6225 is the part number for the Qualcomm Snapdragon 680 4G integrated circuit. **Exhibit 85**.

[12] The Third Representative Qualcomm Article, as depicted in **Exhibit 103**, is partially obscured by a memory chip, supplied by SK Hynix, which is mounted on top of the Third Representative Qualcomm Article. **Exhibit 103** at 27. Complainants have provided screenshots of the system configuration settings of the OnePlus 13 smartphone, in which the Third Representative Qualcomm Article is incorporated, showing that the Third Representative Qualcomm Article is a Qualcomm Snapdragon 8 Elite integrated circuit. **Exhibit 103** at 14.

[13] As set forth above, **Exhibits 84C-86C**, **108C**, and **110C** also demonstrate that the First and Second Lenovo Representative Articles, and the Third OnePlus Representative Article, which incorporate the Qualcomm Representative Articles, violate Section 337.

### 2. Infringement of the ’847 Patent

172. **Exhibit 84C** includes a chart comparing independent claim 1 of the ’847 Patent to the First Qualcomm Representative Article (*i.e.*, the Qualcomm Snapdragon X Elite chip). **Exhibit 84C** shows that the First Qualcomm Representative Article is covered by at least claim 1 of the ’847 Patent.

### 3. Infringement of the ’473 Patent

173. **Exhibit 85C** includes a chart comparing independent claim 1 of the ’473 Patent to the Second Qualcomm Representative Article (*i.e.*, the Qualcomm Snapdragon 680 4G chip). **Exhibit 85C** shows that the Second Qualcomm Representative Article is covered by at least claim 1 of the ’473 Patent.

### 4. Infringement of the ’747 Patent

174. **Exhibit 108C** includes a chart comparing independent claim 1 of the ’747 Patent to the Third Qualcomm Representative Article (*i.e.*, the Qualcomm Snapdragon 8 Elite integrated circuit). **Exhibit 104C** shows that the Third Qualcomm Representative Article is covered by at least claim 1 of the ’747 Patent.

### 5. Infringement of the ’292 Patent

175. **Exhibit 86C** includes a chart comparing independent claim 1, 9, and 15 of the ’292 Patent to the First Qualcomm Representative Article (*i.e.*, the Qualcomm Snapdragon X Elite chip). **Exhibit 86C** shows that the First Qualcomm Representative Article is covered by at least claims 1, 9, and 15 of the ’292 Patent.

### 6. Infringement of the ’880 Patent

176. **Exhibit 110C** includes a chart comparing independent claim 1 of the ’880 Patent to the Third Qualcomm Representative Article (*i.e.*, the Qualcomm Snapdragon 8 Elite integrated circuit). **Exhibit 106C** shows that the Third Qualcomm Representative Article is covered by at

least claim 1 of the ’880 Patent.

### 7. Specific Instance of Sale and Importation

177. Qualcomm imports, sells for importation, and/or sells within the United States after importation, into the United States, the Qualcomm Representative Articles depicted in **Exhibits 88-89** and **103**.

178. Pursuant to Commission Rule 210.12(a)(3), **Exhibit 93** contains the receipt showing a sale of the First Qualcomm Representative Article (*i.e.*, the Qualcomm Snapdragon X Elite integrated circuit), within the United States after importation into the United States. Complainants’ counsel purchased a Lenovo Yoga Slim 7x personal computer containing the Qualcomm Snapdragon X Elite integrated circuit online in the United States from Best Buy for pickup in Burlington, MA. **Exhibit 93**. Upon receipt of the First Qualcomm Representative Article, Complainants’ counsel photographed the packaging of the Lenovo Yoga Slim 7x personal computer, which shows that it was “Made in China,” thereby evidencing the incorporation of the First Qualcomm Representative Article (*i.e.*, the Qualcomm Snapdragon X Elite integrated circuit) into the Lenovo Yoga Slim 7x computer prior to its importation into the United States. **Exhibit 88**. Complainants’ counsel also photographed the First Qualcomm Representative Article (*i.e.*, the Qualcomm Snapdragon X Elite integrated circuit) incorporated in the Lenovo Yoga Slim 7x personal computer. *Id.*

179. According to TSMC, its only U.S. based fab—Fab 21 located in Phoenix, Arizona—is expected to come online in mid-2025, at which time it will begin the production of semiconductor devices only using its 4 nm process node. *See, e.g.*, **Exhibit 94**, https://www.tsmc.com/static/abouttsmcaz/index.htm (accessed Jan. 29, 2025); **Exhibit 61**, https://www.digitimes.com/news/a20250114PD213/us-chips-tsmc-intel-arizona-fab.html (Jan. 14, 2025) (noting that TSMC’s Fab 21 “is now set to produce 4nm chips by mid-2025”). The packaging

of the Lenovo Yoga Slim 7x personal computer indicates that it was "Manufactured for Lenovo" on December 2, 2024, which is prior to the opening of TSMC's Fab 21 for production. *Id.*; **Exhibit 88**. Therefore, the First Qualcomm Representative Article contains a semiconductor die made by outside of the United States using TSMC's 4 nm process node, and was imported. *See, e.g.*, **Exhibit 82,** https://www.anandtech.com/show/21445/qualcomm-snapdragon-x-architecture-deep-dive (June 13, 2024); **Exhibit 83**, https://www.tomshardware.com/news/snapdragon-x-elite-outperforms-intel-amd-apple-cpus-in-vendor-benchmarks (Oct. 23, 2023); **Exhibit 84**, https://www.notebookcheck.net/Qualcomm-Snapdragon-X-Elite-X1E-78-100-Processor-Benchmarks-and-Specs.838568.0.html (accessed Feb. 12, 2025).

180. Pursuant to Commission Rule 210.12(a)(3), **Exhibit 95** contains the receipt showing a sale of the Second Qualcomm Representative Article (*i.e.*, the Qualcomm Snapdragon 680 4G integrated circuit), within the United States after importation into the United States. Complainants' counsel purchased a Motorola Moto G Play smartphone containing the Qualcomm Snapdragon 680 4G integrated circuit online in the United States from Motorola for shipment to its office in Boston, MA. **Exhibit 95**. The shipping history of this product shows that Motorola shipped the Motorola Moto G Play smartphone from its warehouse located in Mebane, NC, and the product arrived in Boston, MA on Jan. 9, 2025. *Id.* Upon receipt of the Second Qualcomm Representative Article, Complainants' counsel photographed the packaging of the Motorola Moto G Play smartphone, which shows that it was "Made in China," thereby evidencing the incorporation of the Second Qualcomm Representative Article (*i.e.*, the Qualcomm Snapdragon 680 4G integrated circuit) into the Motorola Moto G Play smartphone prior to its importation into the United States. **Exhibit 89**. Complainants' counsel also photographed the Second Qualcomm Representative Article (*i.e.*, the Qualcomm Snapdragon 680 4G integrated circuit) incorporated in

the Motorola Moto G Play smartphone. *Id.*

181. Moreover, on information and belief, all TSMC fabs capable of manufacturing at TSMC's infringing 6 nm process are located outside the United States (primarily in Taiwan). *See, e.g.*, **Exhibit 60**, https://www.tsmc.com/english/aboutTSMC/TSMC_Fabs (accessed Feb. 5, 2025). Therefore, the Second Qualcomm Representative Article contains a semiconductor die made by outside of the United States using TSMC's 6 nm process node, and was imported. *See, e.g.*, **Exhibit 85**, https://www.gsmarena.com/motorola_moto_g_play_(2024)-12798.php (accessed Feb. 12, 2025); **Exhibit 86**, https://www.gizmochina.com/2021/09/11/new-qualcomm-mid-range-chips-on-the-way-will-support-144hz-refresh-rate/ (Sept. 11, 2021); **Exhibit 87,** https://www.qualcomm.com/products/mobile/snapdragon/smartphones/snapdragon-6-series-mobile-platforms/snapdragon-680-4g-mobile-platform (accessed Feb. 5, 2025).

182. Pursuant to Commission Rule 210.12(a)(3), **Exhibit 111** contains the receipt showing a sale of the Third Qualcomm Representative Article (*i.e.*, the Qualcomm Snapdragon 8 Elite integrated circuit), within the United States after importation into the United States. Complainants' counsel purchased a OnePlus 13 smartphone containing the Third Qualcomm Snapdragon 8 Elite integrated circuit online in the United States from Best Buy for pickup in Everett, MA. **Exhibit 111**. Upon receipt of the Third Qualcomm Representative Article, Complainants' counsel photographed the packaging of the OnePlus 13 smartphone, which shows that it was "Made in China," thereby evidencing the incorporation of the Qualcomm Representative Article (*i.e.*, the Qualcomm Snapdragon 8 Elite integrated circuit) into the OnePlus 13 smartphone prior to its importation into the United States. **Exhibit 103**. Complainants' counsel also photographed the Third Qualcomm Representative Article (*i.e.*, the Qualcomm Snapdragon 8 Elite integrated circuit) incorporated in the OnePlus 13 smartphone. *Id.*

183. Moreover, on information and belief, all TSMC fabs capable of manufacturing at TSMC's 3 nm processes are located outside the United States (primarily in Taiwan). *See, e.g.*, **Exhibit 60**, https://www.tsmc.com/english/aboutTSMC/TSMC_Fabs (accessed Feb. 5, 2025). Therefore, the Third Qualcomm Representative Article contains a semiconductor die made by outside of the United States using TSMC's 3 nm process node, and was imported. *See, e.g.*, **Exhibit 40**, https://www.oneplus.com/us/oneplus-13 (accessed Feb. 12, 2025); **Exhibit 96**, https://nsaneforums.com/news/mobile-news/qualcomm-announces-snapdragon-8-elite-flagship-smartphone-soc-with-major-improvements-r26125/ (accessed Feb. 12, 2025); **Exhibit 97** (Qualcomm Snapdragon 8 Elite Mobile Platform Product Brief).

184. Therefore, Qualcomm is violating Section 337 of the Tariff Act of 1930 by importing, selling for importation, and/or selling within the United States after importation, into the United States, the Qualcomm Representative Articles, as well as other articles that infringe the Asserted Patents.

## V. THE HARMONIZED TARIFF SCHEDULE INFORMATION

185. On information and belief, the articles subject to this Complaint are classifiable under at least the following headings and subheadings of the Harmonized Tariff Schedule ("HTS") of the United States: 8471.30.01 (Portable automatic data processing machines, weighing not more than 10 kg, consisting of at least a central processing unit, a keyboard and a display); 8471.49.00 (Other automatic data processing machines entered in the form of systems); 8471.50.01 (Processing units other than those of subheading 8471.41 or 8471.49, whether or not containing in the same housing one or two of the following types of unit: storage units, input units, output units); 8517.13.00 (Smartphones); 8517.62.90 (Machines for the reception, conversion and transmission or regeneration of voice, images or other data, including switching and routing apparatus: Other); 8541.21.00 (Transistors, other than photosensitive transistors); 8541.50.00 (Other semiconductor

devices); 8542 (Electronic integrated circuits); and 8542.31.00 (Processors and controllers, whether or not combined with memories, converters, logic circuits, amplifiers, clock and timing circuits, or other circuits).

186. These HTS identifications are for illustrative purposes only, in compliance with the Commission Rules, and are not intended to restrict the scope of the Investigation.

## VI. RELATED LITIGATION

187. Pursuant to Commission Rule 210.12(a)(5), Complainants are also asserting the Asserted Patents against each of the proposed Respondents in district court proceedings, as listed in the table below. No responsive pleadings have been filed in these district court proceedings. To Complainants' knowledge, the alleged unfair methods of competition and unfair acts, or the subject matter thereof, are not, and have not been, the subject of any court or agency litigation.

| Case No. | Case Name | Court |
|---|---|---|
| 1:25-cv-00215 | *Longitude Licensing Ltd., et al. v. Apple Inc., et al.* | W.D. Tex. |
| 2:25-cv-00171 | *Longitude Licensing Ltd., et al. v. Lenovo Group Ltd., et al.* | E.D. Tex. |

## VII. DOMESTIC INDUSTRY RELATING TO THE ASSERTED PATENTS

188. Pursuant to Commission Rule 210.12(a)(6)(i), a domestic industry as defined in Section 337(a)(3) exists in the United States as the result of Intel's domestic activities related to the technology of the Asserted Patents and products that practice the Asserted Patents.

189. Intel has obtained the rights to practice the inventions claimed in the Asserted Patents through a non-exclusive license that it has obtained from Complainants. Pursuant to Commission Rule 210.12(a)(9)(iv), Complainants have attached a copy of the license agreement with Intel. *See* **Exhibit 114C**.

### A. Intel Corporation

190. Intel is a corporation duly organized and existing under the laws of the State of Delaware with a principal place of business located at 2200 Mission College Boulevard, Santa

Clara, CA 95054. **Exhibit 15** (Intel 2024 Form 10-K) (listing the same address on the Form 10-K cover page as "Address of principal executive office"); **Exhibit 115**, https://www.intel.com/content/www/us/en/support/campus-locations.html (accessed Feb. 5, 2025).

191. Intel designs, develops, manufactures, and sells domestic industry products that practice the technology claimed by the Asserted Patents in the United States and/or are or were manufactured by Intel using the methods claimed by the Asserted Patents (collectively, the "DI Products"). The DI Products are and/or have been designed, developed, and/or manufactured as the result of significant and substantial levels of investments by Intel in the United States, including at least significant and continuous investments in plant and equipment, and employment of labor or capital; and substantial and ongoing investments in engineering, research, and development of Intel's products that practice the Asserted Patents. *See* Sections VII.B-VII.G *infra.*[14]

192. On information and belief, the Intel products practicing the Asserted Patents comprise at least the following exemplary lithographies and product families as listed on Intel's website: 10nm (including exemplary product families Agilex 10nm,[15] Elkhart Lake, Ice Lake, Parker Ridge, and Snow Ridge), 10nm SuperFin (including exemplary product family Tiger Lake), Intel 7 (including exemplary product families Agilex Intel 7,[16] Alder Lake, Alder Lake-N, Amston

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[14] Complainants intend to promptly seek discovery from Intel to verify the investments and allocations thereof as detailed in Sections VII.B-VII.G *infra*.

[15] Intel's "Agilex 10nm" family refers to Intel Agilex® 7 FPGA I-Series 027 (R29A), Intel Agilex® 7 FPGA I-Series 027 (R31B), Intel Agilex® 7 FPGA I-Series 040 (R39A), Intel Agilex® 7 FPGA I-Series 022 (R31B), Intel Agilex® 7 FPGA I-Series 023 (R18A), Intel Agilex® 7 FPGA I-Series 019 (R18A), Intel Agilex® 7 FPGA I-Series 019 (R31B), Intel Agilex® 7 FPGA I-Series 023 (R31B), Intel Agilex® 7 FPGA I-Series 027 (R31A), Intel Agilex® 7 FPGA I-Series 022 (R31A), Intel Agilex® 7 FPGA I-Series 041 (R29D), Intel Agilex® 7 FPGA I-Series 035 (R39A), and Intel Agilex® 7 FPGA I-Series 041 (R31B).

[16] Intel's "Agilex Intel 7" family refers to Intel Agilex® 5 FPGA E-Series 065B (B32A), Intel Agilex® 5 FPGA E-Series 065B (B23A), Intel Agilex® 5 FPGA E-Series 065A (B32A), Intel Agilex® 5 FPGA E-Series 065A (B23A), Intel Agilex® 5 FPGA E-Series 013B (B23A), Intel

Lake, Emerald Rapids, Raptor Lake, Sapphire Rapids, Sapphire Rapids Edge Enhanced, and Sapphire Rapids HBM), and Multi-Node Products (including exemplary product families Alchemist, Arrow Lake, Lunar Lake, and Gaudi 2 AI[17]).

193. Intel's investments in products presently under development constitute not only (i) an existing domestic industry, but also (ii) a domestic industry in the process of being established. For example, Intel's investments in products not yet commercialized or presently under development constitute necessary tangible steps to establish an industry in the United States. Also, there is a significant likelihood that the domestic industry requirement will be satisfied in the future as to those products due to the projected demand and market for those products upon commercialization. For example, Intel is investing more than $32 billion to build two new leading-edge chip factories and to modernize an existing fab at its Ocotillo campus in Chandler, Arizona. **Exhibit 116**, https://www.intel.com/content/www/us/en/newsroom/news/updates-intel-10-largest-construction-projects.html#gs.jpvkab (Apr. 15, 2024). On October 18, 2023, Intel announced that its Arizona fab expansion has reached construction milestone: "the initial portion of the cleanroom is 'weather tight' and the 'blow down' phase has begun at the company's two new leading-edge chip factories on its Ocotillo campus in Chandler, Arizona." **Exhibit 117**, https://www.intel.com/content/www/us/en/newsroom/news/arizona-expansion-marks-construction-milestone.html#gs.jpvmai (Oct. 18, 2023). Intel stated that the Arizona expansion is expected to "create more than 3,000 high-tech, high-wage Intel jobs, along with 3,000 construction

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Agilex® 5 FPGA E-Series 013B (B32A), Intel Agilex® 5 FPGA E-Series 013A (B23A), Intel Agilex® 5 FPGA E-Series 013A (B32A), Intel Agilex® 5 FPGA E-Series 008B (B23A), Intel Agilex® 5 FPGA E-Series 013B (M16A), Intel Agilex® 5 FPGA E-Series 008B (M16A), Intel Agilex® 5 FPGA E-Series 008B (B32A), Intel Agilex® 5 FPGA E-Series 013B (B23B), Intel Agilex® 5 FPGA E-Series 008B (B23B), and Intel Agilex® 7 FPGA M-Series 039 (R47A).

[17] Intel's "Gaudi 2 AI" product family refers to Intel® Gaudi® 2 AI accelerator.

jobs." *Id.* As another example, Intel is investing more than $28 billion to construct two new leading-edge chip factories in New Albany, Ohio, the initial phase of which alone is expected to "create 3,000 Intel jobs [and] 7,000 construction jobs." **Exhibit 116**, https://www.intel.com/content/www/us/en/newsroom/news/updates-intel-10-largest-construction-projects.html#gs.jpvkab (Apr. 15, 2024). As one further example, on Jan. 24, 2024, Intel announced the opening of Fab 9, its "cutting-edge factory in Rio Rancho, New Mexico." **Exhibit 118**, https://www.intel.com/content/www/us/en/newsroom/news/intel-opens-fab-9-new-mexico.html#gs.jq8jld (Jan. 24, 2025). Upon information and belief, the technology disclosed in the Asserted Patents will facilitate continued scaling down of transistor sizes, and will therefore be used in Intel's future process nodes.

194. As a result of these investments, a domestic industry exists and is in the process of being established in the United States: under Section 337(a)(3)(A) due to significant investment in plant and equipment with respect to the DI Products; under Section 337(a)(3)(B) due to significant employment of labor or capital with respect to the DI Products; and under Section 337(a)(3)(C) due to substantial investment in research and development with respect to each of the Asserted Patents and with respect to the DI Products.

**B. Intel's U.S. Investments**

195. Intel currently employs approximately 122,000 employees worldwide, of which about 54,400 (44.5%) are located in the United States, and about 67,800 (55.5%) are located outside the United States. *See, e.g.*, **Exhibits 119-133** (accessed Feb. 5, 2025). In 2024, Intel was reported as employing approximately 108,900 employees worldwide. **Exhibit 134**, https://www.macrotrends.net/stocks/charts/INTC/intel/number-of-employees (accessed Feb. 5, 2025).

196. Of Intel's 54,400 employees currently in the United States, approximately 16,400

(30.2%) are located in Intel's U.S. non-fab locations (*e.g.*, California, Texas, and Massachusetts), and approximately 38,000 (69.8%) are located in its U.S. fab locations (*e.g.*, Oregon, Arizona, and New Mexico). *See, e.g.*, **Exhibits 119-124** Thus, based on these headcount totals, approximately 30.2% of Intel's investments in the United States relate to, or support, R&D whereas 69.8% of Intel's investments in the United States relate to, or support, manufacturing. Further, Intel's new factories in Arizona and Ohio are expected to create a total of 6,000 Intel jobs, thereby increasing the U.S. employee headcount to approximately 60,400, the fab location headcount to approximately 44,000 (72.9%), and increasing Intel's investments related to, or support, manufacturing to 72.9%. *See, e.g.*, *id.*; *see also* **Exhibits 116-117**.

197. During its fiscal years 2020-2024 and Q1 2025, Intel offered a range of products, including (i) products having a release date of 2020 onwards, and (ii) products released as early as 2009 but not expressly designated as "Discontinued" or as "Legacy" products on Intel's website (collectively, the "Existing Intel Products"). *See generally* https://www.intel.com/content/www/us/en/ark.html; https://www.intel.com/content/www/us/en/products/overview.html; *see also* **Exhibit 135** (Exemplary DI Product List). These included 2,529 products: 1,834 processors, 26 Graphics products, 119 chipsets, 42 Wireless products, 118 Ethernet products, 247 FGPAs, 95 Server products, and 48 Memory and Storage products. *See, e.g.*, **Exhibit 136** (Summary of Intel Product Count by Group).

198. For purposes of this complaint, Complainants identify the exemplary lithographies and product families listed in ¶ 199 *infra* as the "Exemplary DI Families" and reserve all rights to identify additional DI Products in the future.

199. Of the aforementioned 2,529 Existing Intel Products, at least 110 are in the 10nm

lithography category, at least 46 are in the 10nm SuperFin lithography category, at least 355 are in the Intel 7 lithography category, and at least 20 are in the Multi-Node lithography category.

| Lithography Category | Exemplary Product Family | Product Count | Percentage of Intel Products |
|---|---|---|---|
| 10nm | Agilex 10nm | 13 | 0.5% |
| 10nm | Elkhart Lake | 10 | 0.4% |
| 10nm | Ice Lake | 72 | 2.8% |
| 10nm | Parker Ridge | 6 | 0.2% |
| 10nm | Snow Ridge | 9 | 0.4% |
| 10nm SuperFin | Tiger Lake | 46 | 1.8% |
| Intel 7 | Agilex Intel 7 | 15 | 0.6% |
| Intel 7 | Alder Lake | 92 | 3.6% |
| Intel 7 | Alder Lake-N | 5 | 0.2% |
| Intel 7 | Amston Lake | 7 | 0.3% |
| Intel 7 | Emerald Rapids | 21 | 0.8% |
| Intel 7 | Raptor Lake | 149 | 5.9% |
| Intel 7 | Sapphire Rapids | 53 | 2.1% |
| Intel 7 | Sapphire Rapids Edge Enhanced | 8 | 0.3% |
| Intel 7 | Sapphire Rapids HBM | 5 | 0.2% |
| Multi-Node | Alchemist | 4 | 0.2% |
| Multi-Node | Arrow Lake | 6 | 0.2% |
| Multi-Node | Gaudi 2 AI | 1 | 0.0% |
| Multi-Node | Lunar Lake | 9 | 0.4% |
| | **Total Exemplary DI Products** | **531** | **21.0%** |
| | **Total Intel Products** | 2,529 | 100% |

*See* **Exhibit 135** (Exemplary DI Product List); *see also generally*

https://www.intel.com/content/www/us/en/ark.html;

https://www.intel.com/content/www/us/en/products/overview.html.

200. Based on a straight-line proportion of Intel's 2,529 products, the Exemplary DI Families comprise 21.0% (531/2,529) of Intel's products launched on or after Jan. 1, 2020. These figures are broken down by product family code name below:

| Lithography Category | Product Count | Percentage of Intel Products |
|---|---|---|
| 10nm | 110 | 4.3% |
| 10nm SuperFin | 46 | 1.8% |
| Intel 7 | 355 | 14.0% |
| Multi-Node | 20 | 0.8% |

| Lithography Category | Product Count | Percentage of Intel Products |
|---|---|---|
| **Total Products in the Exemplary DI Families** | **531** | **21.0%** |
| **Total Intel Products** | 2,529 | 100% |

201. On information and belief, Intel's U.S. fabs manufacture at least the lithography categories of Intel's 10nm, 10nm SuperFin, Intel 7, and Multi-Node sizes. For example, as of 2020, Intel "manufactures 10nm products in high volumes at its Oregon and Arizona sites in the U.S." *See* **Exhibit 137**, https://download.intel.com/newsroom/archive/2025/en-us-2020-12-23-10nm-creative-improvements-expand-intel-manufacturing-capacity.pdf (Dec. 23, 2020); *see also* **Exhibit 138**, https://www.tomshardware.com/news/intels-long-awaited-fab-42-is-fully-operational (Oct. 26, 2020) ("All of the company's 10nm products released [up to October 2020] were produced either in Oregon or in Israel."); *id.* ("Fab 42 [in Arizona] had started operations [in October 2020], . . . [which is] the company's 'first mega-factory network,'" *i.e.*, a mega-fab that typically "offer[s] capacity between 25,000 and 100,000 wafer starts per month."). Intel's Oregon and Arizona fabs also manufactures products using its 10 nm Super Fin, including Tiger Lake. **Exhibit 138**. Indeed, as of October 2024, Intel "has also begun construction on two semiconductor fabs just outside of Columbus, Ohio . . . , which are estimated to cost around $20 billion [and] will produce 10 nm chips on 12 inch wafers."). These new Ohio fabs are "expected to be completed in 2025 and represent just the first phase of Intel's multi-year plan to establish a new megasite that will house up to eight semiconductor fabrication plants in Licking County." **Exhibit 139**, https://www.z2data.com/insights/where-are-all-the-north-american-semiconductor-fabs-being-built-2024#:~:text=In%20addition%20to%20its%20new,chips%20on%2012%20inch%20wafers. (Oct. 4, 2024). Similarly, as early as February 2017, Intel started investing in its Intel 7 process at Fab 42 in Arizona. *See, e.g.*, **Exhibit 140**, https://www.intc.com/news-events/press-

releases/detail/248/intel-supports-american-innovation-with-7-billion (Feb. 8, 2017). As of March 2021, Intel announced that "the 7nm manufacturing node from Intel is now running on schedule, with a solid footing." **Exhibit 141**, https://www.anandtech.com/show/16573/intels-new-strategy-20b-for-two-fabs-meteor-lake-7nm-tiles-new-foundry-services-ibm-collaboration-return-of-idf (Mar. 23, 2021). In 2021, Intel also "broke ground on two more semiconductor fabs in, dubbed Fab 52 and Fab 62, on its Ocotillo campus in the Chandler area," which have "a planned completion date sometime in 2024" and "are slated to produce 7 nm semiconductors using the company's 20A fabrication technology." **Exhibit 139**; *see also, e.g.*, **Exhibit 142**, https://newsroom.intel.com/press-kit/press-kit-intel-builds-arizona (accessed Feb. 13, 2025).

202. Intel's 10-K lists its cost of sales across all product lines for fiscal years 2022-2024. **Exhibit 16** at 74 (Intel 2023 Form 10-K); **Exhibit 15** at 57 (Intel 2024 Form 10-K).

203. Based on the percentages of the Exemplary DI Families listed above (totaling 21.0%) and in view of Intel's U.S. headcount percentage of 44.5% (an estimated 30.2% of which are dedicated to R&D in the United States and approximately 69.8% of which are dedicated to manufacturing in the United States), the cost of sales attributable to the Exemplary DI Products from the second half of 2022 to 2024 in the United States are as follows (including approximately $8.1 billion in the United States in the second half of 2022, $14.5 billion in the United States in 2023, and $15.9 billion in the United States in 2024):

| Cost of Sales (in millions) | 2022 2H | 2023 | 2024 | Total |
|---|---|---|---|---|
| 10nm | $350 | $630 | $692 | $1,672 |
| 10nm SuperFin | $147 | $263 | $290 | $699 |
| Intel 7 | $1,131 | $2,032 | $2,234 | $5,397 |
| Multi-Node | $64 | $114 | $126 | $304 |
| **Cost of Sales Allocated to the Exemplary DI Products (U.S.)** | **$1,691** | **$3,039** | **$3,342** | **$8,073** |
| *Cost of Sales (Manufacturing U.S. Total (estimated))* | *$8,055* | *$10,112* | *$11,119* | *$38,448* |
| *Cost of Sales (R&D U.S. Total* | *$5,627* | *$4,364* | *$4,799* | *$26,857* |

| Cost of Sales (in millions) | 2022 2H | 2023 | 2024 | Total |
|---|---|---|---|---|
| *(estimated))* | | | | |
| Cost of Sales (Total U.S. (estimated)) | $2,428 | $14,476 | $15,918 | $11,591 |
| Cost of Sales (Total Worldwide) | $18,094 | $32,517 | $35,756 | $86,367 |

### C. Intel's Significant Investments in Plant and Equipment

#### 1. Square Footage of Buildings Owned

204. Intel's 10-K discloses that Intel owned about 38 million sq. ft. of buildings in the United States, which equated to 54.3% of Intel's global footprint of 70 million sq. ft. as of December 28, 2024. **Exhibit 15** at 49 (Intel 2024 Form 10-K); *see also* **Exhibit 17** (Intel 2022 Form 10-K) at 67; **Exhibit 16** (Intel 2023 Form 10-K) at 66.

205. Applying the same percentages listed above in ¶¶ 196 and 200, the chart below shows the U.S.-based square-footage of buildings allocable to the Exemplary DI Families.

| Plant (Sq. Ft.) (in Millions) | 2022 2H | 2023 | 2024 |
|---|---|---|---|
| 10nm | 1.52 | 1.74 | 1.65 |
| 10nm SuperFin | 0.64 | 0.73 | 0.69 |
| Intel 7 | 4.91 | 5.61 | 5.33 |
| Multi-Node | 0.28 | 0.32 | 0.30 |
| **Sq. Ft. Allocated to the Exemplary DI Products (U.S.)** | **7.35** | **8.40** | **7.98** |
| *Sq. Ft. (Exemplary DI Families Manufacturing U.S. Total (estimated))* | *5.13* | *5.87* | *5.57* |
| *Sq. Ft. (Exemplary DI Families R&D U.S. Total (estimated))* | *2.22* | *2.53* | *2.41* |
| Sq. Ft. (Total U.S. (estimated)) | 35 | 40 | 38 |
| Sq. Ft. (Total Worldwide) | 65 | 73 | 70 |

206. Intel has invested significant sums in domestic plant and equipment relating to the DI Products.

207. Intel owns and operates multiple U.S. semiconductor fabrication facilities in, *e.g.*, Chandler, Arizona; Rio Rancho, New Mexico; and Hillsboro, Oregon; and has additional planned future sites in Chandler, Arizona and New Albany, Ohio currently under construction. **Exhibit 143**,

https://www.intel.com/content/www/us/en/architecture-and-technology/global-manufacturing.html (accessed Feb. 5, 2025).

208. Intel also owns and operates research and development facilities across the United States. For example, Intel reported that "[t]oday, more than 13,500 employees across California design, develop, and support semiconductor products that help to secure, power and connect billions of devices and the infrastructure of the smart, connected world-from the cloud to the network to the edge and everything in between." **Exhibit 119**, https://www.intel.com/content/www/us/en/corporate-responsibility/intel-in-california.html (accessed Feb. 5, 2025).

**2. Value of Land and Buildings**

209. According to Intel's annual reports from fiscal years 2022-2024, Intel's net value of land and buildings was about $44.8 billion in 2022, $51.2 billion in 2023, and $56.5 billion in 2024. **Exhibit 16** at 89 (Intel 2023 Form 10-K); **Exhibit 15** at 75 (Intel 2024 Form 10-K).

210. With an estimate 44.5% Intel's employees based in the United States, Intel's net U.S.-based value of land and buildings was about $10 billion in the second half of 2022, $22.8 billion in 2023, and $25.2 billion in 2024. **Exhibit 16** at 89 (Intel 2023 Form 10-K); **Exhibit 15** at 75 (Intel 2024 Form 10-K).

211. Based on a straight-line proportion of Intel's 2,529 products, the U.S.-based net value of land and buildings allocable to the Exemplary DI Families is approximately $5.3 billion in 2024, which is approximately 9.4% of Intel's overall net value of land and buildings in 2024. **Exhibit 15** at 75 (Intel 2024 Form 10-K).

212. Applying the same percentages listed above in ¶¶ 196 and 200, of the estimated $5.3 billion of the U.S.-based net value of land and buildings allocable to the Exemplary DI Families in 2024, about $3.7 billion (69.8%) is estimated to be dedicated to U.S.-based

manufacturing and about $1.6 billion (30.2%) is estimated to be dedicated to U.S.-based R&D. The amounts for the prior years include approximately $2.1 billion in the United States in the second half of 2022, and $4.8 billion in the United States in 2023. **Exhibit 16** at 89 (Intel 2023 Form 10-K).

| **Plant (Land and Buildings) (in Millions)** | **2022 2H** | **2023** | **2024** | **Total** |
|---|---|---|---|---|
| 10nm | $434 | $991 | $1,095 | $2,520 |
| 10nm SuperFin | $181 | $414 | $458 | $1,054 |
| Intel 7 | $1,400 | $3,198 | $3,533 | $8,132 |
| Multi-Node | $79 | $180 | $199 | $458 |
| **Land and Buildings Allocated to the Exemplary DI Products (U.S.)** | **$2,094** | **$4,784** | **$5,285** | **$12,163** |
| *Exemplary DI Families Manufacturing U.S. Total (estimated)* | *$1,463* | *$3,342* | *$3,692* | *$8,496* |
| *Exemplary DI Families R&D U.S. Total (estimated)* | *$631* | *$1,442* | *$1,593* | *$3,667* |
| Land and Buildings (Total U.S. (estimated)) | $9,974 | $22,785 | $25,172 | $57,930 |
| Land and Buildings (Total Worldwide) | $22,404 | $51,182 | $56,544 | $130,130 |

213. Additionally, Intel's annual reports show that Intel spent significant amounts on construction in the United States during this same period. *See, e.g.*, **Exhibit 16** at 89 (Intel 2023 Form 10-K); **Exhibit 15** at 75 (Intel 2024 Form 10-K).

214. Applying the same percentages listed above in ¶¶ 196 and 200, the chart below shows, on a per-family basis, the amounts of construction expenses allocable to the Exemplary DI Families. Of the estimated $4.7 billion of the U.S.-based construction expenses allocable to the Exemplary DI Families in 2024, approximately $3.3 billion (69.8%) is estimated to be dedicated to U.S.-based manufacturing and approximately $1.4 billion (30.2%) is estimated to be dedicated to U.S.-based R&D. The amounts for the prior years include approximately $1.7 billion in the United States in the second half of 2022, and $4.1 billion in the United States in 2023.

| **Plant (Construction) (in Millions)** | **2022 2H** | **2023** | **2024** | **Total** |
|---|---|---|---|---|
| 10nm | $356 | $841 | $976 | $2,173 |

| Plant (Construction) (in Millions) | 2022 2H | 2023 | 2024 | Total |
|---|---|---|---|---|
| 10nm SuperFin | $149 | $352 | $408 | $909 |
| Intel 7 | $1,148 | $2,715 | $3,151 | $7,013 |
| Multi-Node | $65 | $153 | $177 | $395 |
| **Construction Allocated to the Exemplary DI Products (U.S.)** | **$1,716** | **$4,061** | **$4,713** | **$10,490** |
| *Exemplary DI Families Manufacturing U.S. Total (estimated)* | *$1,199* | *$2,836* | *$3,292* | *$7,327* |
| *Exemplary DI Families R&D U.S. Total (estimated)* | *$517* | *$1,224* | *$1,421* | *$3,162* |
| Construction (Total U.S. (estimated)) | $8,175 | $19,339 | $22,445 | $49,959 |
| Construction (Total Worldwide) | $18,364 | $43,442 | $50,418 | $112,224 |

### 3. Investments in Machinery and Equipment

215. Intel has also made significant investments in the machinery and equipment used to manufacture and test the domestic industry products in the United States. **Exhibit 16** (Intel 2023 Form 10-K) at 89; **Exhibit 15** (Intel 2024 Form 10-K) at 75.

216. Applying the same percentages listed above in ¶¶ 196 and 200, for the second half of 2022 to 2024, Intel invested the following estimated amounts based on the same allocation methodology (including approximately $4.3 billion in the United States in the second half of 2022, $9.4 billion in the United States in 2023, and $9.6 billion in the United States in 2024):

| Machinery and Equipment (in Millions) | 2022 2H | 2023 | 2024 | Total |
|---|---|---|---|---|
| 10nm | $898 | $1,937 | $1,997 | $4,832 |
| 10nm SuperFin | $375 | $810 | $835 | $2,021 |
| Intel 7 | $2,897 | $6,251 | $6,446 | $15,594 |
| Multi-Node | $163 | $352 | $363 | $879 |
| **Machinery and Equipment Allocated to the Exemplary DI Products (U.S.)** | **$4,333** | **$9,350** | **$9,641** | **$23,324** |
| *Exemplary DI Families Manufacturing U.S. Total (estimated)* | *$3,027* | *$6,531* | *$6,735* | *$16,293* |
| *Exemplary DI Families R&D U.S. Total (estimated)* | *$1,306* | *$2,819* | *$2,907* | *$7,032* |
| Machinery and Equipment (Total U.S. (estimated)) | $20,636 | $44,532 | $45,919 | $111,088 |

| Machinery and Equipment (in Millions) | 2022 2H | 2023 | 2024 | Total |
|---|---|---|---|---|
| Machinery and Equipment (Total Worldwide) | $46,356 | $100,033 | $103,150 | $249,539 |

### D. Intel's Significant Investments in Labor and/or Capital

#### 1. Number of Employees

217. A domestic industry as defined by 19 U.S.C. § 1337(a)(3)(B) exists in the United States with respect to the articles protected by the Asserted Patents by reason of Intel's significant employment of labor and/or capital. As noted above, Intel currently employs approximately 122,000 employees worldwide, of which about 54,400 (44.5%) are located in the United States, and about 67,800 (55.5%) are located outside the United States. *See, e.g.*, **Exhibits 119-133** (accessed Feb. 5, 2025).

218. Significant numbers of Intel employees work in the United States relating to, or supporting, R&D (approximately 30.2%) and relating to, or supporting, manufacturing (approximately 69.8%). *See, e.g.*, **Exhibits 119-124** (accessed Feb. 5, 2025). For example, in taking 21.0% of Intel's overall costs associated with the Exemplary DI Families as part of the DI Products, an estimated 11,422 of Intel's 54,400 U.S. employees are dedicated to those families. *Id.*; *see also* ¶ 200 *supra*.

219. Applying the same percentages listed above in ¶¶ 196 and 200, the chart below shows the approximate number of U.S.-based employees dedicated to the Exemplary DI Families:

| Labor (Headcount) | |
|---|---|
| 10nm | 2,366 |
| 10nm SuperFin | 989 |
| Intel 7 | 7,636 |
| Multi-Node | 430 |
| **Headcount Allocated to the Exemplary DI Products (U.S.)** | **11,422** |
| *Exemplary DI Families Manufacturing U.S. Total* | *7,979* |

| Labor (Headcount) | |
|---|---|
| *(estimated)* | |
| *Exemplary DI Families R&D U.S. Total (estimated)* | *3,443* |
| Headcount (Total U.S.) | 54,400 |
| Headcount (Total Worldwide) | 122,000 |

### 2. Marketing and G&A Expenses

220. Intel has also made significant investments in marketing the Exemplary DI Families, as well as in general and administrative ("G&A") expenses related to the Exemplary DI Families. **Exhibit 16** at 74 (Intel 2023 Form 10-K); **Exhibit 15** at 57 (Intel 2024 Form 10-K).

221. Applying the same percentages listed above in ¶¶ 196 and 200, for the second half of 2022 to 2024, the chart below shows the approximate amount of investments Intel has made in these areas related to the Exemplary DI Families:

| Marketing and G&A (in Millions) | 2022 2H | 2023 | 2024 | Total |
|---|---|---|---|---|
| 10nm | $68 | $109 | $107 | $284 |
| 10nm SuperFin | $28 | $46 | $45 | $119 |
| Intel 7 | $219 | $352 | $344 | $915 |
| Multi-Node | $12 | $20 | $19 | $52 |
| **Marketing and G&A Allocated to the Exemplary DI Products (U.S.)** | **$327** | **$527** | **$515** | **$1,369** |
| Marketing and G&A (Total U.S. (estimated)) | $1,559 | $2,508 | $2,452 | $6,518 |
| Marketing and G&A (Total Worldwide) | $3,501 | $5,634 | $5,507 | $14,642 |

222. These marketing and G&A numbers alone demonstrate that Intel's employment of labor and capital comprise a domestic industry in the United States with respect to the Asserted Patents.

## E. Intel's Substantial Investments in the Exploitation of the Asserted Patents

223. A domestic industry as defined by 19 U.S.C. § 1337(a)(3)(C) exists in the United States with respect to the Asserted Patents by reason of Intel's substantial investment in its

engineering, research, and development ("R&D") directed to its products covered by the Asserted Patents.

224. In addition to each of the estimated totals of plant, equipment, construction, and labor in support of Intel's R&D operations in the United States as described in ¶¶ 204-222 *supra*, Intel reports its total investment in research and development expenses in each fiscal year. Intel's reported R&D expenses for fiscal years 2022-2024 was approximately $50.1 billion. **Exhibit 16** (Intel 2023 Form 10-K) at 74; **Exhibit 15** at 57 (Intel 2024 Form 10-K). The approximate U.S. portion of that investment from the second half of 2022 to 2024 was approximately $3.9 billion.

225. Applying the same percentages listed above in ¶¶ 196 and 200, the chart below shows the amount of U.S. R&D investments allocable to the Exemplary DI Families:

| **R&D (in Millions)** | **2022 2H** | **2023** | **2024** | **Total** |
|---|---|---|---|---|
| 10nm | $170 | $311 | $320 | $801 |
| 10nm SuperFin | $71 | $130 | $134 | $335 |
| Intel 7 | $548 | $1,003 | $1,034 | $2,584 |
| Multi-Node | $31 | $56 | $58 | $146 |
| **R&D Allocated to the Exemplary DI Products (U.S.)** | **$819** | **$1,500** | **$1,547** | **$3,866** |
| R&D (Total U.S.) | $3,901 | $7,143 | $7,366 | $18,411 |
| R&D (Total Worldwide) | $8,764 | $16,046 | $16,546 | $41,356 |

226. In sum, Intel has expended, and will continue to expend, significant and substantial domestic resources in plant and equipment, labor or capital, research and development, and engineering, in connection with the design, development, support, and manufacture of the DI Products, including products within the Exemplary DI Families. A domestic industry therefore exists in connection with the Asserted Patents.

### F. Intel's Domestic Industry in the Process of Being Established

227. In addition to Intel's existing domestic industry, Intel is engaging in tangible steps to establish an industry in the future, and there is a significant likelihood that an industry will be

established in the future based on Intel's ongoing and increasing activities in the United States. Therefore Intel, in addition to its existing domestic industry, also is in the process of establish a domestic industry pursuant to 19 U.S.C. § 1337(a)(2) with respect to domestic industry products that practice the technology claimed by the Asserted Patents in the United States, *e.g.*, the products in the Exemplary DI Families.

228. Intel has been and continues to actively engage in ongoing manufacturing and R&D activities with respect to domestic industry products, including through its significant investments in additional U.S. fabs that will include process nodes at which the products in the Exemplary DI Families are manufactured. *See, e.g.*, ¶¶ 193, 201 *supra*.

229. For example, Intel's projected addition of 6,000 high-tech jobs—as a result of 3,000 new jobs in Ohio and another 3,000 new jobs in Arizona—would result in Intel's U.S. percentage of headcount increasing to approximately 47.11%. *See, e.g.*, ¶ 193 *supra*; **Exhibits 116-117**.

230. In addition, with increased employees at Intel's fab locations in the United Staes, the percentage of Intel's manufacturing headcount would also increase to 72.85%. *Id.* With these new jobs, Intel's 2025 U.S. investments in cost of sales, R&D, MG&A, Machinery and Equipment, Construction, and Land and Buildings allocated to the Exemplary DI Products will also increase, even with the conservative presumption that Intel maintains the same level of overall company-wide investments in 2025 that it made in the year 2024. In particular, even with this conservative presumption, with 6,000 newly added U.S. jobs for Intel's fab locations, cost of sales allocated to the Exemplary DI Products would total $3.537 billion (an increase from $3.342 in 2024), R&D allocated to the Exemplary DI Products would total $1.637 billion (an increase from $1.547 billion in 2024), MG&A allocated to the Exemplary DI Products would total $545 million (an increase from $515 million in 2024), Machinery and Equipment allocated to the Exemplary DI Products

would total $10.204 billion (an increase from $9.641 billion in 2024), Construction allocated to the Exemplary DI Products would total $4.987 billion (an increase from $4.713 billion in 2024), and Land and Buildings allocated to the Exemplary DI Products would total $5.593 billion (an increase from $5.285 billion in 2024). *See* Sections VII.B-VII.E *supra*; *see also* **Exhibit 15** (Intel 2024 Form 10-K) at 49, 57, 75.

231. Therefore, Intel has taken necessary tangible steps to establish a domestic industry. There is also a significant likelihood that such an industry will be established in the future.

**G. DI Representative Articles**

232. Pursuant to Commission Rule 210.12(a)(9)(ix), Complainants are required to chart "a representative involved domestic article" of Intel to an exemplary claim of each involved Asserted Patent. As described above, Complainants believe that at least the Intel SRK02 Core i7-1165G7 integrated circuit (also sometimes referred to by its code name "Tiger Lake") and the Intel Core Ultra 7 265k processor (also sometimes referred to by its code name "Arrow Lake") (together, the "DI Representative Articles"), are exemplary of numerous other DI Products because such other devices feature the same or substantially similar features that practice the Asserted Patents, and/or are manufactured by similar processes that practice the Asserted Patents. Pursuant to Commission Rule 210.12(a)(9)(x), **Exhibit 144-145** contains photographs of the DI Representative Articles.

233. **Exhibits 18C-19C** include charts comparing independent claim 1 of the '847 Patent to the DI Representative Articles, which shows that the DI Representative Articles practice at least one claim of the '847 Patent.

234. **Exhibits 20C-21C** include charts comparing independent claim 1 of the '473 Patent to the DI Representative Articles, which shows that the DI Representative Articles practice at least one claim of the '473 Patent.

235. **Exhibits 22C-23C** include charts comparing independent claim 1 of the ’747 Patent to the DI Representative Articles, which shows that the DI Representative Article practices at least one claim of the ’747 Patent.

236. **Exhibits 24C-25C** include charts comparing independent claim 1, 9, and 15 of the ’292 Patent to the DI Representative Articles, which shows that the DI Representative Articles practice at least one claim of the ’292 Patent.

237. **Exhibits 26C-27C** include charts comparing independent claim 1 of the ’880 Patent to the DI Representative Articles, which shows that the DI Representative Articles practice at least one claim of the ’880 Patent.

## VIII. REQUESTED REMEDIAL ORDERS

### A. Limited Exclusion Order

238. Pursuant to Section 337(d), Complainants respectfully request that a limited exclusion order be entered against each named Respondent and its subsidiaries, predecessors, affiliates, agents, successors, and assigns, in order to remedy the Respondents’ violation of Section 337 and to prevent such future violations by Respondents, barring from entry into the United States all articles (made from or incorporating non-x86 semiconductor wafers or dies manufactured using TSMC’s 7 nm and smaller process nodes outside of the United States) that directly infringe, literally or under the doctrine of equivalents, the Asserted Patents.

### B. Cease and Desist Order

239. Cease and desist orders against all named Respondents are appropriate under Section 337(f), which provides that the Commission may issue a cease and desist order against any person violating Section 337, prohibiting each Respondent and its subsidiaries, predecessors, affiliates, agents, successors, and assigns from engaging in the (a) importation, sale for importation, and/or sale within the United States after importation of such articles; (b) marketing, distributing,

offering for sale, selling, or otherwise transferring (except for exportation) in the United States such articles; (c) advertising such imported articles; (d) soliciting U.S. agents, retailers, resellers, or distributors for such articles; and (e) aiding or abetting other entities in the importation, sale for importation, sale after importation, transfer (except for exportation), or distribution of such articles. On information and belief, each Respondent maintains or may maintain by the conclusion of the evidentiary hearing (or are involved in the direction of others in maintaining) commercially significant inventory of foreign-fabricated semiconductor devices, products containing the same (*e.g.*, integrated circuits, circuit boards, smartphones, tablets, smartwatches, personal computers, and network units), and components thereof. Moreover, upon information and belief, although TSMC may import wafers into the United States through the CyberShuttle program in low volumes, those shipments and inventories are nonetheless commercially significant, as those low volume shipments often result in TSMC securing a design win to mass-produce the design incorporated in the CyberShuttle prototype. Additionally, whereas here, each Respondent's infringing foreign-fabricated semiconductor devices, products containing the same (*e.g.*, integrated circuits, circuit boards, smartphones, tablets, smartwatches, personal computers, and network units), and components thereof, are easily concealed, and it is difficult to identify the source of infringing goods, a cease and desist order is necessary to ensure compliance with the requested remedial orders. At least for the foregoing reasons, cease and desist orders are an appropriate remedy to prevent the widespread violation of Complainants' patent rights.

## IX. RELIEF REQUESTED

240. WHEREFORE, by reason of the foregoing, pursuant to Commission Rule 210.12(a)(11), Complainants request that the United States International Trade Commission:

a. Institute an investigation pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, with respect to the Respondents' violations of Section 337 based

on the design, manufacture, importation into the United States, sale for importation into the United States, sale within the United States after importation, and instruction of purchasers on the infringing use of any articles, including foreign-fabricated semiconductor devices, products containing the same, and components thereof, that infringe or are made by manufacturing processes that infringe one or more claims of one or more of the Asserted Patents;

b. Schedule and conduct an evidentiary hearing on permanent relief pursuant to 19 U.S.C. § 1337(d) and (f) of the Tariff Act of 1930, as amended;

c. Issue a Limited Exclusion Order specifically directed to each named Respondent and its subsidiaries, predecessors, affiliates, agents, successors, and assigns, pursuant to 19 U.S.C. § 1337(d), excluding from entry into the United States any articles (made from or incorporating non-x86 semiconductor wafers or dies manufactured using TSMC's 7 nm and smaller process nodes outside of the United States), including foreign-fabricated semiconductor devices, products containing the same, and components thereof, that infringe or are made by processes that infringe one or more claims of one or more of the Asserted Patents;

d. Issue permanent cease and desist orders pursuant to 19 U.S.C. § 1337(f) prohibiting each Respondent and its subsidiaries, predecessors, affiliates, agents, successors, and assigns, from, among other things, importing, selling, offering for sale (including via the Internet or electronic mail), advertising (including via the Internet or electronic mail), or distributing articles, including foreign-fabricated semiconductor devices, products containing the same, and components thereof, that infringe or are made by processes that infringe one or more claims of one or more of the Asserted Patents; and

e. Impose a bond upon each Respondent and its subsidiaries, predecessors, affiliates, agents, successors, and assigns, who continues to import infringing articles, including

foreign-fabricated infringing semiconductor devices, products containing the same, and components thereof, that infringe or are made by processes that infringe, during the 60-day Presidential review period per 19 U.S.C. § 1337(j); and issue such other and further relief as the Commission deems just and proper under the law, based upon the facts determined by the investigation and the authority of the Commission.

Dated: February 14, 2025

Respectfully submitted,

*/s/ Adam S. Rizk*

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*Counsel for Complainants*
*Longitude Licensing Ltd. and*
*Marlin Semiconductor Limited*

## VERIFICATION OF COMPLAINT

I, Paul Ahern, am a Director at Longitude Licensing Ltd. and am duly authorized to execute this verification of the accompanying Complaint under Section 337 of the Tariff Act of 1390, as Amended, on behalf of Complainant Longitude Licensing Ltd.

I have read the Complaint and am aware of its contents. I hereby declare, in accordance with 19 C.F.R. § 210.12(a)(1), that to the best of my knowledge, information, and belief and based upon a reasonable inquiry under the circumstances:

1. The allegations contained in the Complaint are well grounded in fact and have evidentiary support, or are likely to have evidentiary support after a reasonable opportunity for further investigation or discovery;

2. The claims and other legal contentions set forth in the Complaint are warranted by existing laws or by a good faith, non-frivolous argument for extension, modification, or reversal of existing law, or by the establishment of new law; and

3. The Complaint is not being filed for any improper purpose, such as to harass or cause unnecessary delay or needless increase in the cost of litigation.

Executed on February 14, 2025

Paul Ahern
Director, Duly Authorized
Longitude Licensing Ltd.

## VERIFICATION OF COMPLAINT

I, Paul Ahern, am a Director at Marlin Semiconductor Limited. and am duly authorized to execute this verification of the accompanying Complaint under Section 337 of the Tariff Act of 1390, as Amended, on behalf of Complainant Marlin Semiconductor Limited.

I have read the Complaint and am aware of its contents. I hereby declare, in accordance with 19 C.F.R. § 210.12(a)(1), that to the best of my knowledge, information, and belief and based upon a reasonable inquiry under the circumstances:

1. The allegations contained in the Complaint are well grounded in fact and have evidentiary support, or are likely to have evidentiary support after a reasonable opportunity for further investigation or discovery;

2. The claims and other legal contentions set forth in the Complaint are warranted by existing laws or by a good faith, non-frivolous argument for extension, modification, or reversal of existing law, or by the establishment of new law; and

3. The Complaint is not being filed for any improper purpose, such as to harass or cause unnecessary delay or needless increase in the cost of litigation.

Executed on February 14, 2025

Paul Ahern
Director, Duly Authorized
Marlin Semiconductor Limited.