



NOKIA OF AMERICA CORPORATION
Petitioner,
v.
ALEXANDER SOTO & WALTER SOTO,
Patent Owners.

U.S. Patent No. 8,238,754

AIA Review No. IPR2023-00960

Petitioner's Demonstratives | Under 37 C.F.R. § 42.70(b)
December 3, 2024, Oral Argument

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE – 1

Nokia of America Corporation
IPR2023-00960, Ex. 1042
1 of 47

ROADMAP

01 | Overview of Disputes

02 | Overview of the Challenged Patent

03 | Motivation to Combine

04 | Ground 1 – Shruga + Togami

05 | Ground 2 – Shruga + Togami + G.984.3

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► (1) The combination of Shraga and Togami proposed by Petitioner

Petition for Inter Partes Review

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE – 4

KEY DISPUTES

▶ (1) The combination of Shraga and Togami proposed by Petitioner

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA OF AMERICA CORPORATION
Petitioner

v.

ALEXANDER SOTO AND WALTER SOTO,
Patent Owners.

Case No. IPR2023-00960
U.S. Patent No. 8,238,754

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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US Patent and Trademark Office
PO Box 1450
Alexandria, Virginia 22313-1450

Petitioner's Reply

Q: What is the first step that a PHOSITA would take in order to make your proposed combination that you are referencing in your declaration?

A: The step would be to **put the functionality that is described in Shraga's ONT into the pluggable module that Togami describes.**

Q: And when you say "the functionality," which blocks of the ONT are you referring to?

A: So if we're looking at the Shraga ONT, **it would be everything but the switch, the switch** which is labeled as, I think, 64. **Every other functionality that's in that ONT would go into the Togami pluggable.**

Q: Okay. Thank you for that clarification. That helps clear up a lot of confusion.

KEY DISPUTES

(2) A POSITA would have been motivated to combine Shraga and Togami

UNITED STATES PATENT AND TRADEMARK OFFICE

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Patent Owners.

Case: IPR2023-00960

U.S. Patent No. 8,238,754

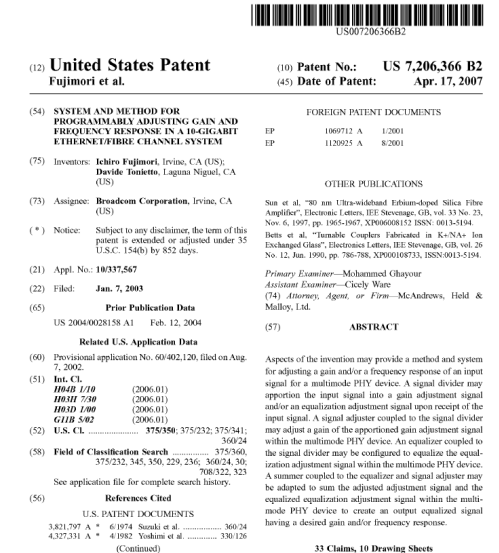
PETITION FOR INTER PARTES REVIEW
UNDER 35 U.S.C. §311-319 AND 37 C.F.R. §42.104

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US Patent and Trademark Office
PO Box 1450
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Petition for Inter Partes Review

Additionally, Fujimori (U.S. Patent No. 7,206,366), filed on January 7, 2003, also demonstrates the general knowledge of the POSITA as it discloses the use of pluggable optical transceiver modules in high-speed data communication networks over optical fibers (i.e., PONs). Ex. 1003, ¶109; Ex. 1008, 1:38-40, 2:11-41. The pluggable modules of Fujimori “may be configured to communicate, namely transmit and receive, data between computer system and optical network,” where the data transmitted and/or received may be formatted in accordance with the well-known OSI protocol standard. Ex. 1003, ¶109; Ex. 1008, 5:65-6:2.

“An optical-based transceiver, for example, may implement tasks such as clock data recovery, clock multiplication, serialization/deserialization, encoding/decoding, electrical/optical conversion, descrambling, media access control (MAC), controlling, and data storage.”



Fujimori

KEY DISPUTES

(12) **United States Patent**
Togami et al.

(10) Patent No.: **US 6,439,918 B1**
(45) Date of Patent: **Aug. 27, 2002**

(54) **ELECTRONIC MODULE HAVING AN INTEGRATED LATCHING MECHANISM**

(75) Inventors: **Chris Togami, San Jose, Gary Newhouse, Fremont, both of CA (US)**

(73) Assignee: **Finisar Corporation, Sunnyvale, CA (US)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/971,885**

(22) Filed: **Oct. 4, 2001**

(51) Int. Cl.: **H01R 13/64**

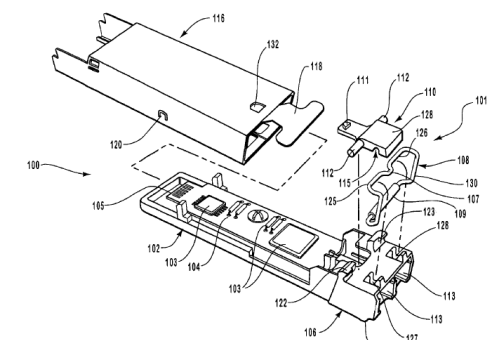
(52) U.S. Cl.: **439/372, 439/638, 439/76.1, 439/157**

(58) Field of Search: **439/372, 638, 439/76.1, 352, 157**

(50) **References Cited**

U.S. PATENT DOCUMENTS
4,995,821 A * 2/1991 Casey 439/372
5,021,003 A * 6/1991 Ohtaka et al. 439/372
5,901,263 A 5/1999 Gao et al. 385/92
5,980,324 A 11/1999 Berg et al. 439/630

18 Claims, 6 Drawing Sheets



Nokia of America Corporation
IPR2023-00960, Ex. 1007
Ex. 1007.001

Togami

"Reference is first made to FIGS. 1 and 2 together, which illustrate perspective views of one presently preferred embodiment of an optical transceiver module . . . In this example, the **circuit board accommodates the transceiver electronics 103 and optics (not shown), although it could be comprised of any circuitry or components depending on the type of module being used.**"

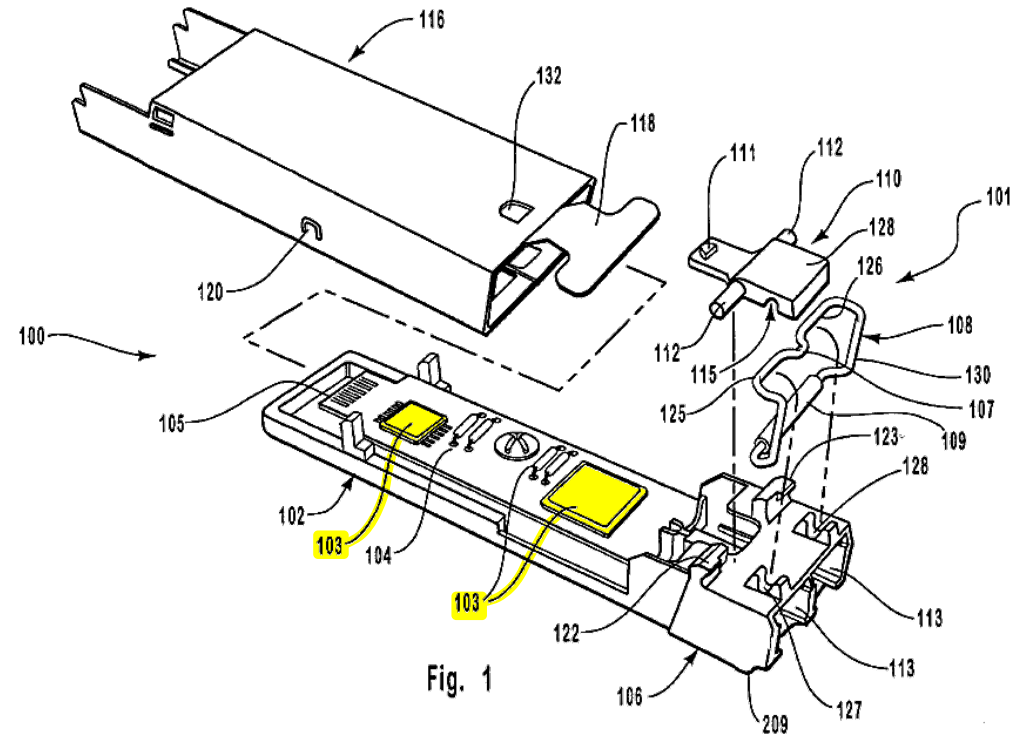


Fig. 1

NO DISPUTE

(1) But for Patent Owners' challenges to Claim 1, Patent Owners do not challenge the obviousness of dependent claims 2-8, 11-16, 19-24, and 26-30.

10. No dependent claims are obvious

Because Petitioner and Dr. Prucnal have not shown that the Shruga and Togami combination invalidates the asserted independent claims, the dependent claims are also not invalid for at least the same reasons.

(2) Patent Owners do not dispute, but admit, that elements of Claim 1 are independently shown in Shruga and Togami.

The proposed combinations are missing many claim elements. The Petition attempts to obscure these deficiencies by pointing to disparate parts of *pre-combination* Togami and *pre-combination* Shruga for claim elements. Not once does

* * *

Only Togami, and not Shruga, discloses an optical transceiver module that has a pluggable form factor as recited in the claim. This is because Togami's device is

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PATENT OWNERS' RESPONSE

Patent Owners' Response

NO DISPUTE

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PATENT OWNERS' RESPONSE

Patent Owners' Response

(3) But for Patent Owners' duplicated disputes to Ground 1, Patent Owners do not further dispute the obviousness of the Challenged Claims under Ground 2.

VII. Ground 2 (Shraga, Togami, and Draft/Contribution 104) has the same problems as Ground 1

The addition of G.984.3 Draft/Contribution 104 in combination with Shraga/Togami does not address the problems discussed above for the independent claims as discussed above for Ground 1.

(4) Patent Owners do not dispute that a POSITA would have been motivated to combine the G.984.3 Draft Recommendation with Shraga and Togami.

ROADMAP

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04 | Ground 1 – Shruga + Togami

05 | Ground 2 – Shruga + Togami + G.984.3

OVERVIEW OF THE '754 PATENT



(12) **United States Patent**
Soto et al.

(10) **Patent No.:** **US 8,238,754 B2**
(45) **Date of Patent:** **Aug. 7, 2012**

(54) **SYSTEM AND METHOD FOR PLUGGABLE OPTICAL MODULES FOR PASSIVE OPTICAL NETWORKS**

(76) Inventors: **Alexander I Soto**, San Diego, CA (US);
Walter G Soto, San Clemente, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 40 days.

(21) Appl. No.: **12/092,872**
(22) Filed: **Dec. 30, 2010**

(65) **Prior Publication Data**
US 2011/0150475 A1 Jan. 23, 2011

Related U.S. Application Data
(63) Continuation of application No. 10/886,514, filed on Jul. 6, 2004, now Pat. No. 7,925,162.

(60) Provisional application No. 60/485,072, filed on Jul. 3, 2003, provisional application No. 60/515,836, filed on Oct. 30, 2003.

(51) **Int. Cl.** **H04L 1/00** (2006-01)

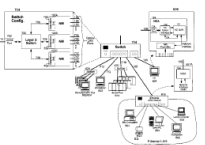
(52) **U.S. Cl.** **380/66, 67, 380/96, 100**

(58) **Field of Classification Search** **380/66, 67, 380/96, 100**
See application file for complete search history.

(56) **References Cited**
U.S. PATENT DOCUMENTS

4,761,000 A 10/1987 Karsch
4,756,041 A 10/1988 Bushash
5,925,331 A 7/1991 Green et al.
5,571,349 A 11/1996 Day et al.
6,037,487 A 2/2000 Abdelmalak et al.
6,448,067 B1 12/2002 Maniaci et al.
6,776,309 B2 8/2004 Medsker et al.
6,788,813 B1 9/2004 Brown et al.
6,792,207 B2 9/2004 Inanue et al.

65 Claims, 21 Drawing Sheets



Nokia of America Corporation
IPR2023-00960, Ex. 1001
Ex. 1001.001

(12) **United States Patent**
Soto et al.

(10) **Patent No.:** **US 8,238,754 B2**
(45) **Date of Patent:** **Aug. 7, 2012**

(54) **SYSTEM AND METHOD FOR PLUGGABLE OPTICAL MODULES FOR PASSIVE OPTICAL NETWORKS**

(76) Inventors: **Alexander I Soto**, San Diego, CA (US);
Walter G Soto, San Clemente, CA (US)

6,970,461 B2	11/2005	Unitt et al.
7,031,343 B1	4/2006	Kuo et al.
2002/0006111 A1	1/2002	Akita et al.
2002/0067529 A1	6/2002	Yokomoto et al.
2002/0163921 A1	11/2002	Ethridge et al.
2003/0091045 A1	5/2003	Choi et al.
2003/0227926 A1	12/2003	Ramamurthy et al.
2003/0236916 A1	12/2003	Adcox et al.

(22) Filed: **Dec. 30, 2010**

(65) **Prior Publication Data**

US 2011/0150475 A1 Jan. 23, 2011

Related U.S. Application Data

(63) Continuation of application No. 10/886,514, filed on Jul. 6, 2004, now Pat. No. 7,925,162.

(60) Provisional application No. 60/485,072, filed on Jul. 3, 2003, **provisional application No. 60/515,836, filed on Oct. 30, 2003.**

III. The Priority Date of the '754 Patent is at least October 2003

For purposes of this IPR, Patent Owners agree to assume that the proper priority date is October 30, 2003. See Petition at 8–9 (assuming same). None of the

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PATENT OWNERS' RESPONSE

'754 Patent

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OVERVIEW OF THE '754 PATENT

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(76) Inventors: **Alexander J Soto**, San Diego, CA (US);
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(21) Appl. No.: **12/982,872**

(22) Filed: **Dec. 30, 2010**

(65) **Prior Publication Data**

US 2011/0150475 A1 Jun. 23, 2011

Related U.S. Application Data

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(51) **Int. Cl.** **H04L 1/00** (2006.01)

(52) **U.S. Cl.** **398/100**

(58) **Field of Classification Search** **398/66-67, 398/96-100**

See application file for complete search history.

(57) **ABSTRACT**

An optical local area network includes a passive optical distribution fabric interconnecting a plurality of nodes including a first node and a plurality of remaining nodes, a hub that includes the first node and a control module, and a client network adapter coupled to each of the remaining nodes for responding to the control module. The control module controls timing for each of the client network adapters to transmit signals over the passive optical distribution fabric and distribution of signals to each of the nodes.

References Cited

U.S. PATENT DOCUMENTS

4,701,909 A 10/1987 Kavehrad

4,796,041 A 10/1988 Harbans

5,026,333 A 7/1991 Garver et al.

5,572,340 A 11/1990 Hale et al.

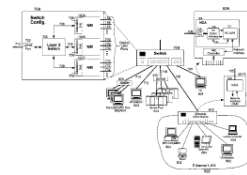
6,023,467 A 2/2000 Abdelhamid et al.

6,498,667 B1 12/2002 Manucci et al.

6,778,399 B2 8/2004 Medina et al.

6,788,831 B1 9/2004 Bissone et al.

6,792,207 B2 9/2004 Gammone et al.



65 Claims, 21 Drawing Sheets

Nokia of America Corporation
IPR2023-00960, Ex. 1001
Ex. 1001.001

'754 Patent

Prior art

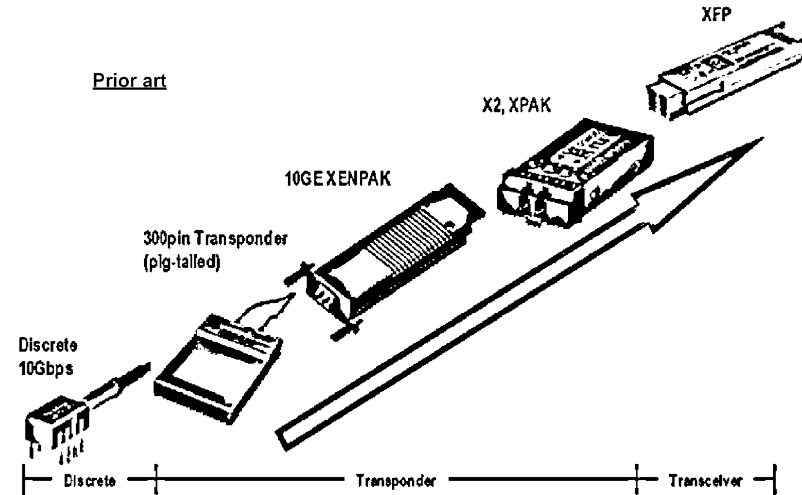


FIG. 13

Prior art

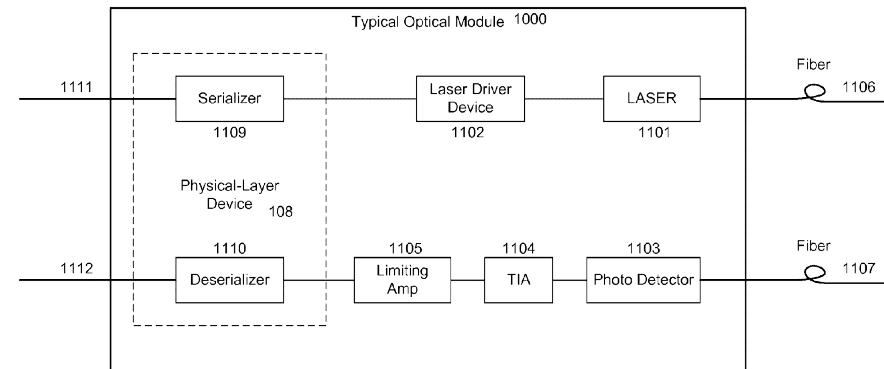


FIG. 11

**** Information Specification ****

INF-80741 Rev 1.0

SFP Committee documentation may be purchased in hard copy or electronic form
SFP specifications are available at: [ftp://ftp.seagate.com/sff](http://ftp.seagate.com/sff)

SFP Committee

INF-80741 Specification for:

SFP (Small Formfactor Pluggable) Transceiver

Rev 1.0

May 12, 2001

Secretariat: SFP Committee

Abstract: This specification describes the SFP (Small Formfactor Pluggable) Transceivers developed by the MSA (Multiple Source Agreement) group. The following companies participated in the MSA.

Agilent Technologies

Blaze Network Products

E2O Communications

Excelight Communications

Finisar

Fujikura Technology America

Hitachi Cable

Infineon Technologies

IRM

Lucent Technologies

Molex

Optical Communication Products

Picoblitz

Stratos Lightwave

Tyco Electronics

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SFP (Small Formfactor Pluggable) Transceiver

Page 1

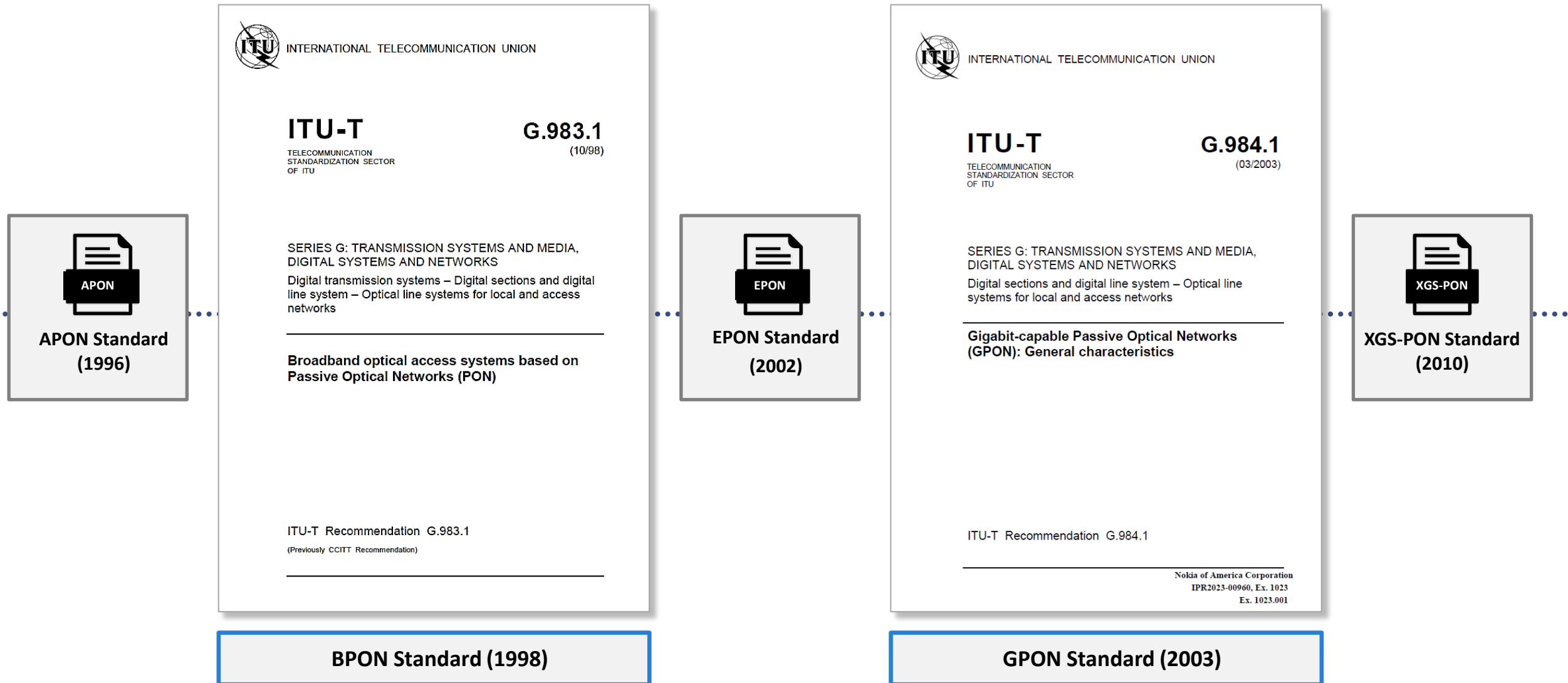
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IPR2023-00960, Ex. 1016

Ex. 1016.002

SFP MSA

OVERVIEW OF THE '754 PATENT



OVERVIEW OF THE '754 PATENT

United States Patent
Soto et al.

(12) Patent No.: **US 8,238,754 B2**
(45) Date of Patent: **Aug. 7, 2012**

SYSTEM AND METHOD FOR PLUGGABLE OPTICAL MODULES FOR PASSIVE OPTICAL NETWORKS

Inventors: **Alexander J Soto, San Diego, CA (US); Walter G Soto, San Clemente, CA (US)**

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Filed: **Dec. 30, 2010**

Prior Publication Data
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Int. Cl. **H04L 1/00** (2006.01)
U.S. Cl. **398/100**
Field of Classification Search **398/66-67, 398/96-100**
See application file for complete search history.

References Cited

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4,701,999 A 10/1987 Kerschad
4,796,041 A 10/1988 Harbards
5,026,333 A 7/1991 Garver et al.
5,572,340 A 11/1990 Hale et al.
6,023,467 A 2/2000 Abdelhamed et al.
6,498,667 B1 12/2002 Manucci et al.
6,778,399 B2 8/2004 Medina et al.
6,788,833 B1 9/2004 Bissone et al.
6,792,207 B2 9/2004 Gammone et al.

OTHER PUBLICATIONS

E. Mediano et al., "A Novel Medium Access Control Protocol for WDM-Based LAN's and Access Networks Using a...", Journal of Lightwave Tech., vol. 18, No. 4, Apr. 2000.
M. Sacher et al., "Fibre Channel and Related Standards", IEEE Communications Magazine, Aug. 1996.
Redonovic, "Ethernet-Based Passive Optical Local Area Networks for Fiber-to-the-Desk Application", Journal of Lightwave Tech., Nov. 2003, pp. 2534-2545, vol. 21, No. 11.
Chang et al., "Implementation of STANET: A WDM Computer Communication Network", Journal on Selected Areas of Communications, Jan. 1996, pp. 824-839, vol. 14, No. 5.
Ransom, Eric, "The Fibernet II Ethernet-Compatible Fiber-Optic LAN", IEEE Journal of Lightwave Technology, Jan. 1985, pp. 496-501, vol. LT-3, No. 3.
E. Mediano, "WDM-Based Packet Networks", IEEE Communications Magazine, Mar. 1999.
E. Mediano, "Design and Analysis of an Asynchronous WDM Local Area Network Using a Master/Slave Scheduler", IEEE, 1999.
R. Mauger, The Integration of ATM, SDH and POS Technology in the Access Network, Fourth IEEE Conference on Telecommunications 1993.

Primary Examiner — Shi K Li

ABSTRACT

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65 Claims, 21 Drawing Sheets

'754 Patent

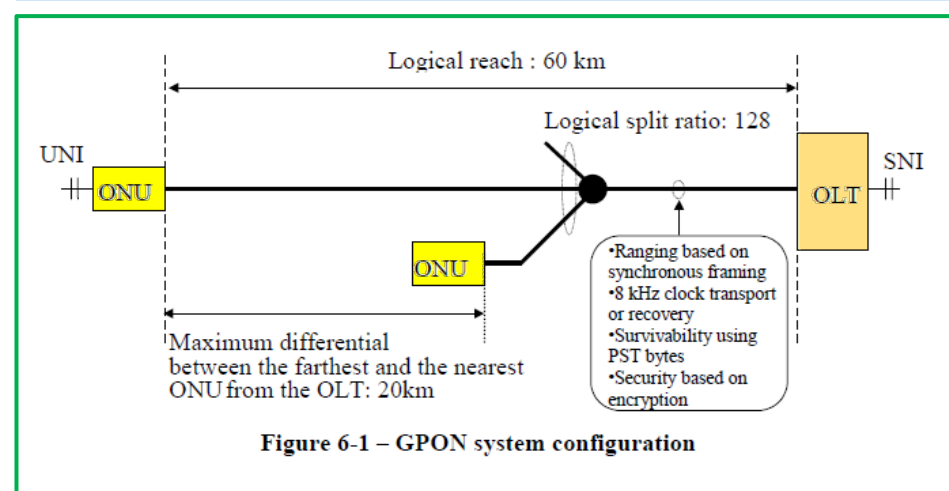
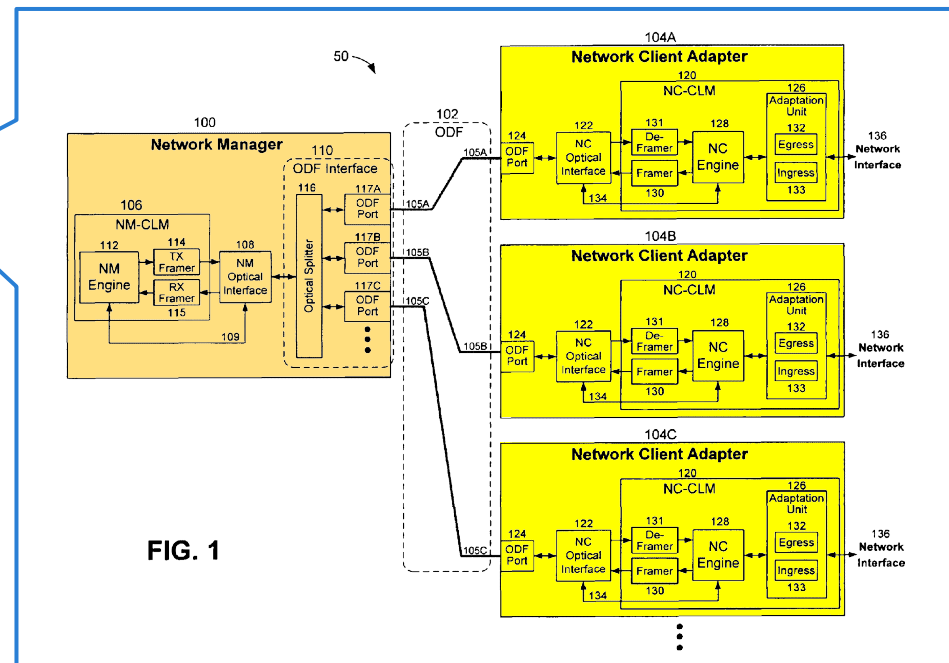


Figure 6-1 – GPON system configuration

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION STANDARDIZATION SECTOR

STUDY PERIOD 2001-2004

STUDY GROUP 15

TD 7 (PLEN)

English only
Original: English

Question(s): 2/15

TEMPORARY DOCUMENT

Source: Editor Recommendation G.984.3

Title: Draft new Recommendation 984.3 - Transmission Convergence Layer for Gigabit Passive Optical Networks (for consent)

This TD contains a revision and replaces the text submitted as Contribution COM-C 104.7

Summary

This recommendation describes the Transmission Convergence Layer for Gigabit-Capable Passive Optical Networks – a family of flexible access networks capable of providing a range of broad-band and narrow-band services. Systems operating at rates of 1.24416 and 2.48832 Gb/s downstream, and 0.15552, 0.62208, 1.24416, and 2.48832 Gb/s upstream are described.

This recommendation forms an integral part of the G.984 series that, together, specify a single coherent set of access transmission systems.

The G.984 series differs from the previous G.983 series primarily in that higher line bit rates are described. As a consequence of this difference, the G.984 series deals with many technical issues and features in a manner different from the G.983 series. The two series are not interoperable.

Keywords

<Optional>

Introduction

This Recommendation is intended to describe flexible access networks using optical fibre technology. This Recommendation deals with specifications for Gigabit PON Transmission Convergence (GTC) frame, message, ranging method, OAM functionality and security.

1 Scope

This Recommendation is intended to describe flexible access networks using optical fibre technology. The focus is primarily on a network to support services including POTS, data, video, leased line and distributive services.

NOTE TSB: References [1] and [12] to IEEE and NIST must be justified according to Rec. A.5.

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IPR2023-00960, Ex. 1011-1
Ex. 1011-1.001

G.984.3 Draft Recommendation

OVERVIEW OF THE '754 PATENT

US 8,238,754 B2

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(10) Patent No.: US 8,238,754 B2
(45) Date of Patent: Aug. 7, 2012

(54) SYSTEM AND METHOD FOR PLUGGABLE OPTICAL MODULES FOR PASSIVE OPTICAL NETWORKS

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(52) U.S. Cl. 398/100

(58) Field of Classification Search 398/66-67, 398/96-100

See application file for complete search history.

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U.S. PATENT DOCUMENTS

4,701,999 A 10/1987 Karsch

4,796,041 A 10/1988 Hufnagel

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5,572,340 A 11/1990 Hale et al.

6,023,467 A 2/2000 Abdelhamid et al.

6,498,667 B1 12/2002 Mancini et al.

6,778,399 B2 8/2004 Mediano et al.

6,788,833 B1 9/2004 Bissone et al.

6,792,207 B2 9/2004 Gammone et al.

6,970,461 B2 11/2005 Ustin et al.

7,031,343 B1 4/2006 Kuo et al.

2002/0066113 A1 1/2002 Akita et al.

2002/0075229 A1 6/2002 Yokomura et al.

2002/0169211 A1 11/2002 Fiksel et al.

2003/0091045 A1 5/2003 Choi et al.

2003/0279726 A1 12/2003 Ramanamirthy et al.

2003/0240916 A1 12/2003 Adcock et al.

2004/0052274 A1 3/2004 Wong et al.

OTHER PUBLICATIONS

E. Mediano et al., "A Novel Medium Access Control Protocol for WDM-Based LAN's and Access Networks Using a...", Journal of Lightwave Tech., vol. 18, No. 4, Apr. 2000.

M. Sacher et al., "Fiber Channel and Related Standards", IEEE Communications Magazine, Aug. 1996.

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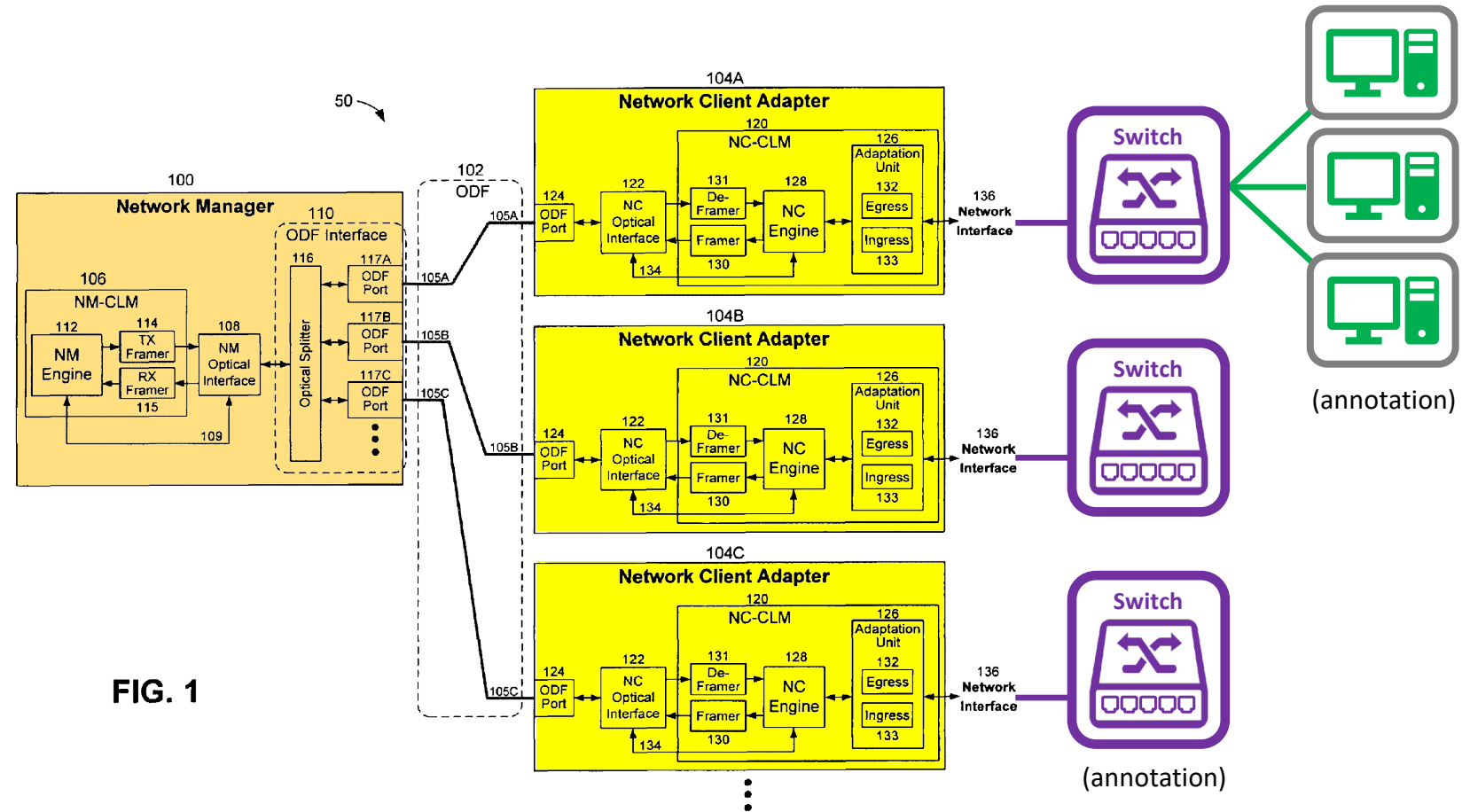
Primary Examiner—Shi K Li

ABSTRACT

An optical local area network includes a passive optical distribution fabric interconnecting a plurality of nodes including a first node and a plurality of remaining nodes, a hub that includes the first node and a control module, and a client network adapter coupled to each of the remaining nodes for responding to the control module. The control module controls timing for each of the client network adapters to transmit signals over the passive optical distribution fabric and distribution of signals to each of the nodes.

65 Claims, 21 Drawing Sheets

Nokia of America Corporation
IPR2023-00960, Ex. 1001
Ex. 1001.001



'754 Patent

OVERVIEW OF THE '754 PATENT

(12) **United States Patent**
Soto et al.

(10) **Patent No.:** US 8,238,754 B2
(45) **Date of Patent:** Aug. 7, 2012

(54) **SYSTEM AND METHOD FOR PLUGGABLE OPTICAL MODULES FOR PASSIVE OPTICAL NETWORKS**

(76) Inventors: Alexander J Soto, San Diego, CA (US);
Walter G Soto, San Clemente, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 40 days.

(21) Appl. No.: 12/982,872

(22) Filed: Dec. 30, 2010

(65) **Prior Publication Data**

US 2011/0150475 A1 Jun. 23, 2011

Related U.S. Application Data

(63) Continuation of application No. 10/886,514, filed on Jul. 6, 2004, now Pat. No. 7,025,162.

(60) Provisional application No. 60/485,072, filed on Jul. 3, 2003; provisional application No. 60/515,836, filed on Oct. 30, 2003.

(51) **Int. Cl.** H04L 1/00 (2006.01)

(52) **U.S. Cl.** 398/100

(58) **Field of Classification Search** 398/66-67, 398/96-100

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,701,909 A 10/1987 Kerschad

4,796,041 A 10/1988 Hufnagel

5,026,333 A 7/1991 Givens et al.

5,572,340 A 11/1990 Hale et al.

6,023,467 A 2/2000 Abdelhamid et al.

6,498,667 B1 12/2002 Manucci et al.

6,778,399 B2 8/2004 Medina et al.

6,788,833 B1 9/2004 Bissone et al.

6,792,207 B2 9/2004 Samson et al.

OTHER PUBLICATIONS

E. Modiano et al., "A Novel Medium Access Control Protocol for WDM-Based LAN's and Access Networks Using a . . .", Journal of Lightwave Tech., vol. 18, No. 4, Apr. 2000.

M. Sacher et al., "Fiber Channel and Related Standards", IEEE Communications Magazine, Aug. 1996.

Redonovic, "Ethernet-Based Passive Optical Local Area Networks for Fiber-to-the-Desk Application", Journal of Lightwave Tech., Nov. 2003, pp. 2534-2542, vol. 21, No. 11.

Chang et al., "Implementation of STANET: A WDM Computer Communication Network", Journal on Selected Areas of Communications, Jun. 1996, pp. 824-839, vol. 14, No. 5.

Ransom, Eric, "The Ethernet II Ethernet-Compatible Fiber-Optic LAN", IEEE Journal of Lightwave Technology, Jun. 1985, pp. 496-501, vol. LT-3, No. 3.

E. Modiano, "WDM-Based Packet Networks", IEEE Communications Magazine, Mar. 1999.

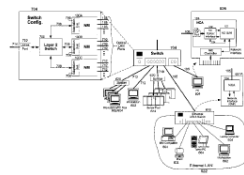
I. Modiano, "Design and Analysis of an Asynchronous WDM Local Area Network Using a Master/Slave Scheduler", IEEE, 1999.

R. Mauger, "The Integration of ATM, SDH and POS Technology in the Access Network", Fourth IEEE Conference on Telecommunications 1993.

ABSTRACT

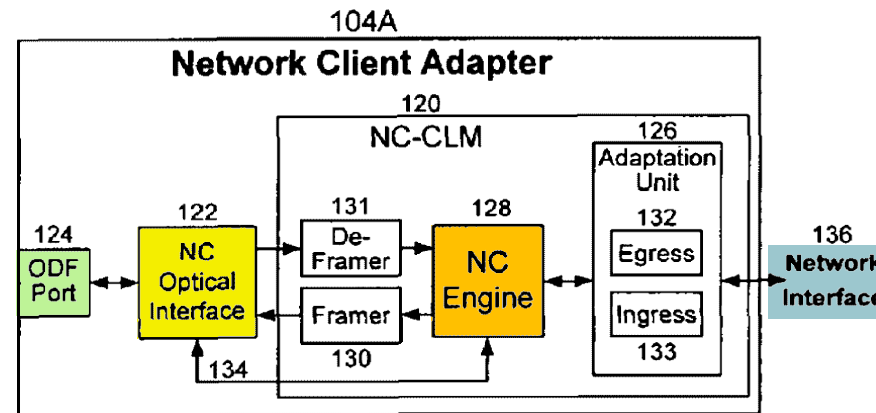
An optical local area network includes a passive optical distribution fabric interconnecting a plurality of nodes including a first node and a plurality of remaining nodes, a hub that includes the first node and a control module, and a client network adapter coupled to each of the remaining nodes for responding to the control module. The control module controls timing for each of the client network adapters to transmit signals over the passive optical distribution fabric and distribution of signals to each of the nodes.

65 Claims, 21 Drawing Sheets



Nokia of America Corporation
IPR2023-00960, Ex. 1001
Ex. 1001.001

'754 Patent



A network client optical transceiver module for a passive optical network, . . . comprising:
an optical port configured to optically couple to one or more optical fibers of the passive optical network having one or more passive optical splitters;

a bi-directional optical interface block optically coupled to the optical port and configured to perform optical-to-electrical and electrical-to-optical signal conversion;

a control module electrically coupled to the bi-directional optical interface block and configured to receive from the head end of the passive optical network data communications representing one or more start times for transmitting data communications to the head end of the passive optical network and configured to transmit the data communications to the head end of the passive optical network responsive to the start times; and

an electrical network interface port electrically coupled to the control module and for electrically coupling into the optical module port of the switch or router and for communicating with the switch or router;

ROADMAP

01 | Overview of Disputes

02 | Overview of the Challenged Patent

03 | Motivation to Combine

04 | Ground 1 – Shruga + Togami

05 | Ground 2 – Shruga + Togami + G.984.3

Togami

MOTIVATION TO COMBINE

(12) **United States Patent**
Togami et al.

(10) Patent No.: **US 6,439,918 B1**
(45) Date of Patent: **Aug. 27, 2002**

(54) **ELECTRONIC MODULE HAVING AN INTEGRATED LATCHING MECHANISM**

(75) Inventors: **Chris Togami, San Jose; Gary Newhouse, Fremont, both of CA (US)**

(73) Assignee: **Finisar Corporation, Sunnyvale, CA (US)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/971,885**

(22) Filed: **Oct. 4, 2001**

(51) Int. Cl.⁷ **H01R 13/64**

(52) U.S. Cl. **439/372, 439/638, 439/76.1, 439/157**

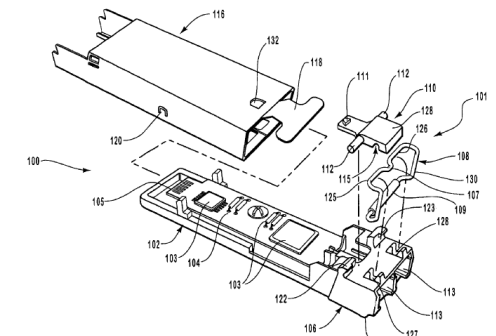
(58) Field of Search **439/372, 638, 439/76.1, 352, 157**

(50) **References Cited**

U.S. PATENT DOCUMENTS

4,995,821 A * 2/1991 Casey 439/372
5,021,003 A * 6/1991 Ohtaka et al. 439/372
5,901,263 A 5/1999 Gao et al. 385/92
5,980,324 A 11/1999 Berg et al. 439/630

18 Claims, 6 Drawing Sheets



Nokia of America Corporation
IPR2023-00960, Ex. 1007
Ex. 1007.001

Togami

"Reference is first made to FIGS. 1 and 2 together, which illustrate perspective views of one presently preferred embodiment of an optical transceiver module . . . In this example, the **circuit board accommodates the transceiver electronics 103 and optics (not shown), although it could be comprised of any circuitry or components depending on the type of module being used.**"

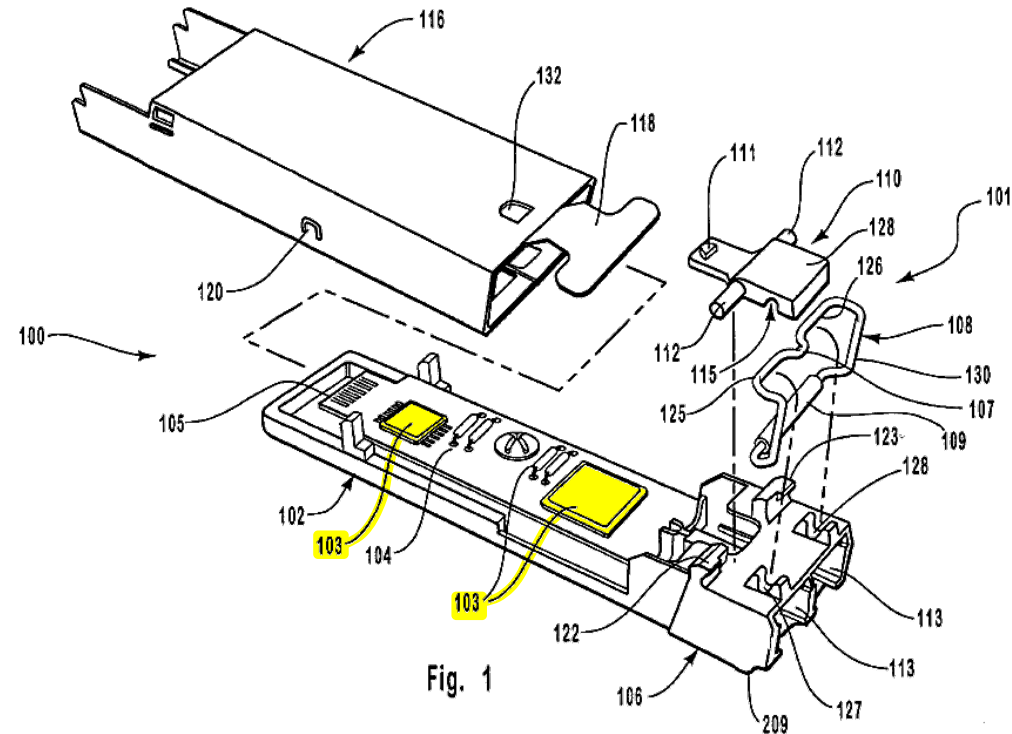
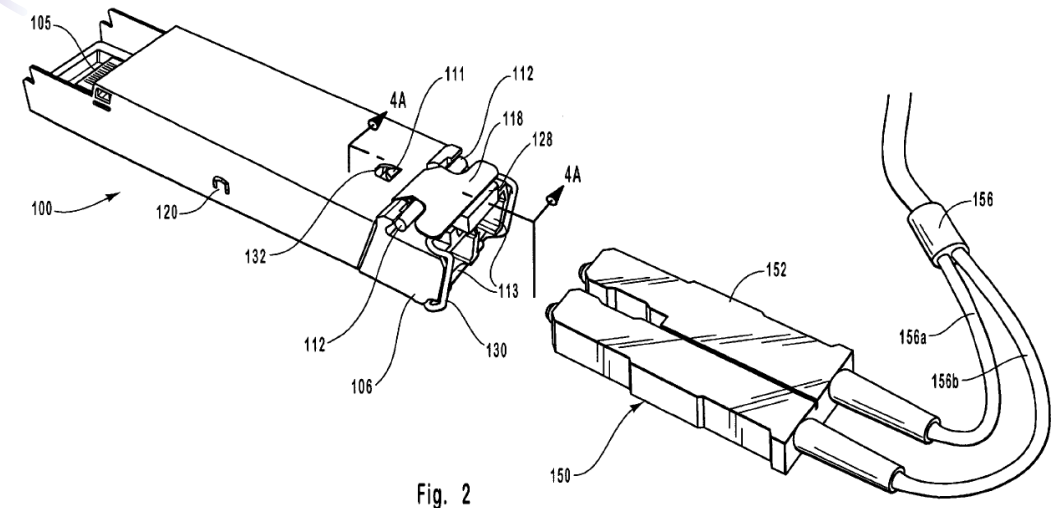
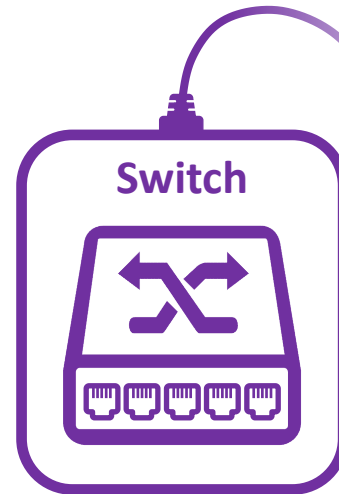


Fig. 1

“Typically, a transceiver module **is electrically interfaced with** a host device—such as a host computer, switching hub, network router, **switch box**, computer I/O and the like—via a compatible connection port.”

This exploded perspective view shows the assembly of the trim assembly 100. The trim assembly 100 includes a main trim panel 102 with a central display or control area 104. The trim panel 102 is shown being aligned with a mounting bracket 106. The mounting bracket 106 has various mounting points and features, including a hinge mechanism 107 and 108, and a locking or adjustment mechanism 109 and 110. The trim panel 102 also features a recessed area 112 and a protruding tab 113. The mounting bracket 106 has a corresponding slot 114 and a protruding tab 115. The trim panel 102 is shown being aligned with a mounting bracket 106. The mounting bracket 106 has various mounting points and features, including a hinge mechanism 107 and 108, and a locking or adjustment mechanism 109 and 110. The trim panel 102 also features a recessed area 112 and a protruding tab 113. The mounting bracket 106 has a corresponding slot 114 and a protruding tab 115.

Togami



MOTIVATION TO COMBINE

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA OF AMERICA CORPORATION,

Petitioner,

v.

ALEXANDER I. SOTO AND WALTER G. SOTO,

Patent Owners.

Case: IPR2023-00960

U.S. Patent No. 8,238,754

PETITION FOR *INTER PARTES* REVIEW

UNDER 35 U.S.C. §311-319 AND 37 C.F.R. §42.104

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Petition

GOAL to decrease transceiver size, due to numerous benefits of pluggable form factors...

- Ease of installment, repairment, and replacement
- Less down time of fiber-optic system during maintenance
- Compact size saves space, increase the port density on a switch
- More cost effective, saving on...
 - Installation, repairs, replacement
 - Manufacturing costs
- Universal compatibility with PON systems
- Simplification of system upgrades

MOTIVATION TO COMBINE

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA OF AMERICA CORPORATION
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ALEXANDER SOTO AND WALTER SOTO,
Patent Owners.

Case No. IPR2023-00960
U.S. Patent No. 8,238,754

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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Alexandria, Virginia 22313-1450

Petitioner's Reply



A POSITA aware of Togami's pluggable transceiver module would have been motivated to add additional functionality.

A POSITA would have been motivated to combine Shraga's data communication system and functionality with the pluggable optical transceiver module described in Togami. *See* Petition, 18-21. Despite POs' protestations to the contrary, Petitioner's enumerated motivations (ease of install, repair, and/or replacement; compact footprint; and cost-effective nature) would not have encouraged a POSITA to maintain the *status quo*. Ex. 1041 ¶25. Rather, these motivations would have encouraged a POSITA to implement these common and useful form factors in order to achieve the well-known and desired benefits of a smaller, easily removable device. *Id.*; *see also, e.g.*, Petition, 19-21.

MOTIVATION TO COMBINE


 US007206366B2

(12) **United States Patent**
Fujimori et al.

(10) **Patent No.:** **US 7,206,366 B2**
 (45) **Date of Patent:** **Apr. 17, 2007**

(54) **SYSTEM AND METHOD FOR PROGRAMMABLY ADJUSTING GAIN AND FREQUENCY RESPONSE IN A 10-GIGABIT ETHERNET/FIBRE CHANNEL SYSTEM**

(75) Inventors: **Ichiro Fujimori**, Irvine, CA (US);
David Tonietti, Laguna Niguel, CA (US)

(73) Assignee: **Broadcom Corporation**, Irvine, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 822 days.

(21) Appl. No.: **10/337,567**

(22) Filed: **Jan. 7, 2003**

(65) **Priority Publication Data**
 US 2004/0028159 A1 Feb. 12, 2004

Related U.S. Application Data

(60) Provisional application No. 60/402,120, filed on Aug. 7, 2002.

(51) **Int. Cl.**
H04B 1/16 (2006.01)
H04B 7/29 (2006.01)
H04B 1/00 (2006.01)
G11D 5/82 (2006.01)

(52) **U.S. Cl.** **375/558; 375/232; 375/341; 360/24**

(58) **Field of Classification Search** **375/360; 375/232; 345, 350, 229, 236; 360/24; 708/322, 323**

See application file for complete search history.

(56) **References Cited**
U.S. PATENT DOCUMENTS
 3,821,797 A * 6/1974 Suzuki et al. 360/24
 4,327,231 A * 4/1982 Yoshida et al. 330/126
 (Continued)

FOREIGN PATENT DOCUMENTS

EP 1969712 A 1/2001
 EP 1129925 A 8/2001

OTHER PUBLICATIONS

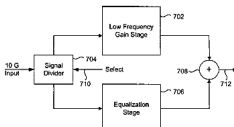
Sun et al., "30 nm Ultrawideband Erbium-Doped Silica Fibre Amplifier", *Electronic Letters*, IEEE, Stevenage, GB, vol. 33 No. 23, Nov. 6, 1997, pp. 1965-1967, XP000081473 ISSN: 0013-5194.
 Betts et al., "Tunable Couplers Fabricated in K₂Na₂ Ion Exchanged Glass", *Electronic Letters*, IEEE, Stevenage, GB, vol. 26 No. 12, Jun. 1990, pp. 780-788, XP002033733, ISSN: 0013-5194.
 Primary Examiner—Muhammad Ghayoor
 Assistant Examiner—Cécily Ware
 (74) Attorney, Agent, or Firm—McAndrews, Held & Malloy, Ltd.

ABSTRACT

Aspects of the invention may provide a method and system for adjusting a gain and/or frequency response of an input signal for a multimode PHY device. A signal divider may apportion the input signal into a gain adjustment signal and/or an equalization adjustment signal upon receipt of the input signal. A signal adjuster coupled to the signal divider may adjust a gain of the apportioned gain adjustment signal within the multimode PHY device. An equalizer coupled to the signal divider may be configured to equalize the equalization adjustment signal within the multimode PHY device. A summer coupled to the equalizer and signal adjuster may be adapted to sum the adjusted adjustment signal and the equalized equalization adjustment signal within the multimode PHY device to create an output equalized signal having a desired gain and/or frequency response.

33 Claims, 10 Drawing Sheets

100



Nokia of America Corporation
 IPR2023-00960, Ex. 1008
 Ex. 1008.001

Fujimori

(12) **United States Patent**
Fujimori et al.

(10) **Patent No.:** US 7,206,366 B2
(45) **Date of Patent:** Apr. 17, 2007

(54) **SYSTEM AND METHOD FOR
PROGRAMMABLY ADJUSTING GAIN AND
FREQUENCY RESPONSE IN A 10-GIGABIT
ETHERNET/FIBRE CHANNEL SYSTEM**

FOREIGN PATENT DOCUMENTS

EP	1069712 A	1/2001
EP	1120925 A	8/2001

(75) Inventors: **Ichiro Fujimori**, Irvine, CA (US);
Davide Tonietto, Laguna Niguel, CA
(US)

(73) Assignee: **Broadcom Corporation**, Irvine, CA
(US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 852 days.

(21) Appl. No.: 10/337,567

(22) Filed: **Jan. 7, 2003**

“[S]ystem manufacturers prefer to use small form factor optical modules such as XFP”



“An optical-based transceiver, for example, may implement tasks such as clock data recovery, clock multiplication, serialization/deserialization, encoding/decoding, electrical/optical conversion, descrambling, **media access control (MAC), controlling,** and data storage.”

MOTIVATION TO COMBINE

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA OF AMERICA CORPORATION
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v.

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Patent Owners.

Case No. IPR2023-00960
U.S. Patent No. 8,238,754

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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Petitioner's Reply



As is common in standalone switches, a POSITA would recognize that a switch's controller, or CLU, would stay with the switch.

not true. *See id.*, ¶17. First, the Petition does not suggest removing the switch-specific control functions from the Shraga device. Ex. 2021, 87:8-88:4 (“So I’m not just taking the CLU out of Shraga . . .”). The switch’s controller would stay with the switch. *Id.* And second, Shraga describes and shows switch 64 as being

* * *

¶141; *see also* Ex. 2021, 66:12-17, 68:17-22, 69:13-25; Ex. 1041 ¶16. In fact, it was well known in the art at the time of the ’754 Patent’s filing that ONTs and switches, such as Shraga’s switch 64, came in the form of separately packaged devices and could communicate electrically via, for example, an ethernet cable. Ex. 1041 ¶16. Dr. Prucnal describes his personal familiarity with these devices in his supplemental Declaration. *Id.* It was also well known, as he describes, that these switches included their own discrete controllers or CLUs and thus, it would not have been required for a switch to be controlled by an external controller or CLU. *Id.*, ¶¶17, 23.

MOTIVATION TO COMBINE

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U.S. Patent No. 8,238,754

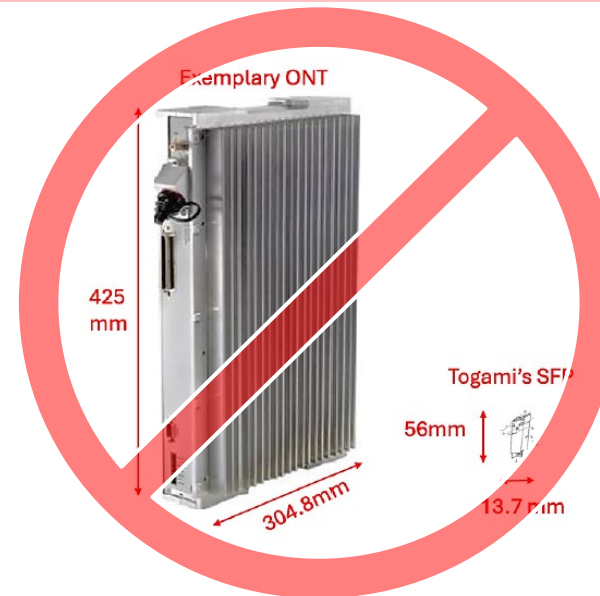
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Petitioner's Reply



Petitioner does not propose placing an entire Motorola ONT containing a 24-port switch, 12-port DSL modem, and backup battery supply into a pluggable optical module.



Instead, Petitioner's combination confirms that a POSITA would have found it obvious to place discrete components capable of carrying out data communications functionalities of a PON in a pluggable module. *See* Petition, 18-19, 24, 26-28, 31-

ROADMAP

01 | Overview of Disputes

02 | Overview of the Challenged Patent

03 | Motivation to Combine

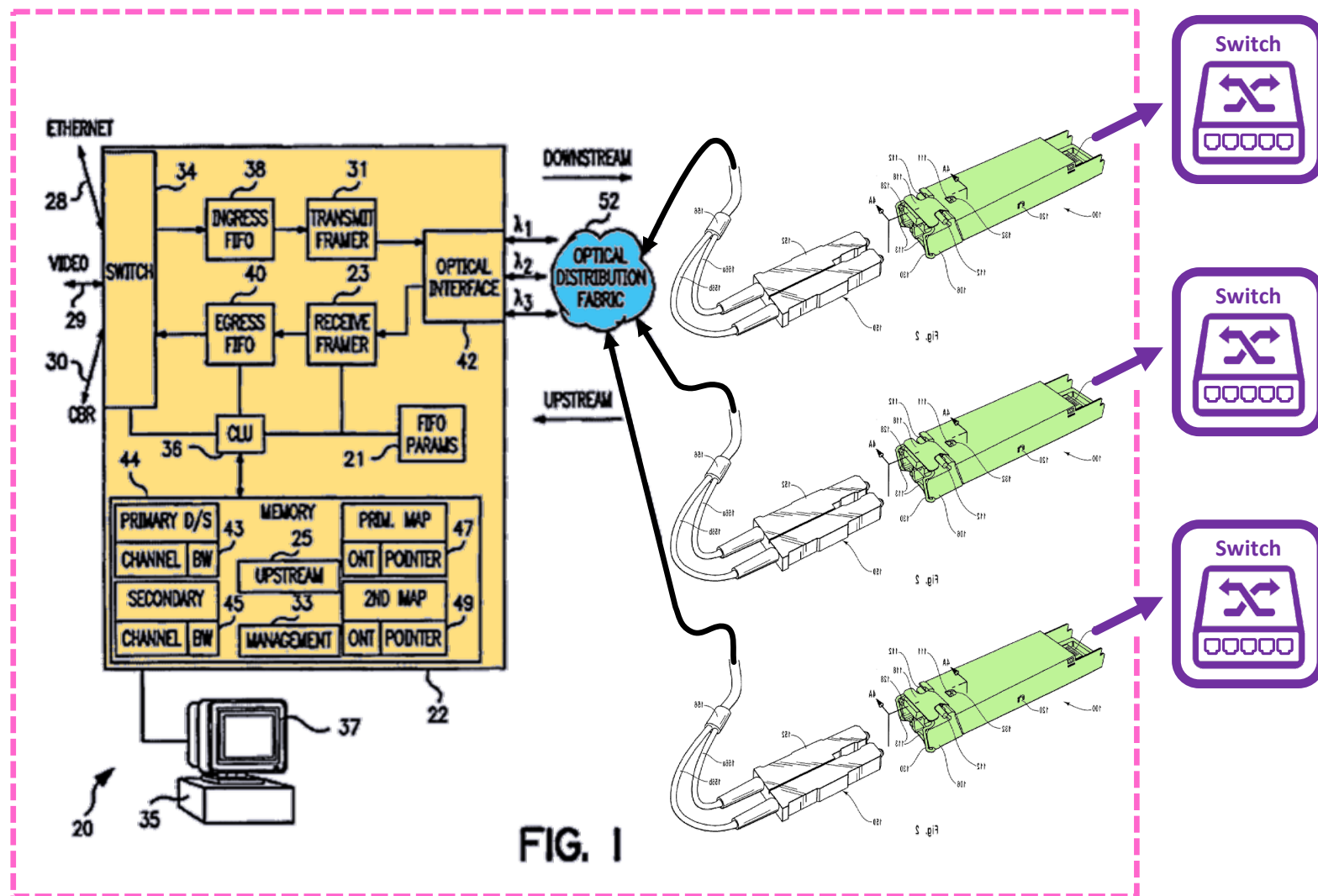
04 | Ground 1 – Shruga + Togami

05 | Ground 2 – Shruga + Togami + G.984.3

GROUND 1 – SHRAGA + TOGAMI

'754 Patent, Claim [1.pre]

A network client optical transceiver module for a **passive optical network**, the passive optical network having one or more **passive optical splitters** for coupling the network client optical transceiver module over one or more optical fibers to the **head end** of the passive optical network and the network client optical transceiver module having a **pluggable form factor** and configured to removably couple to an **optical module port of a switch or router**, . . . comprising:



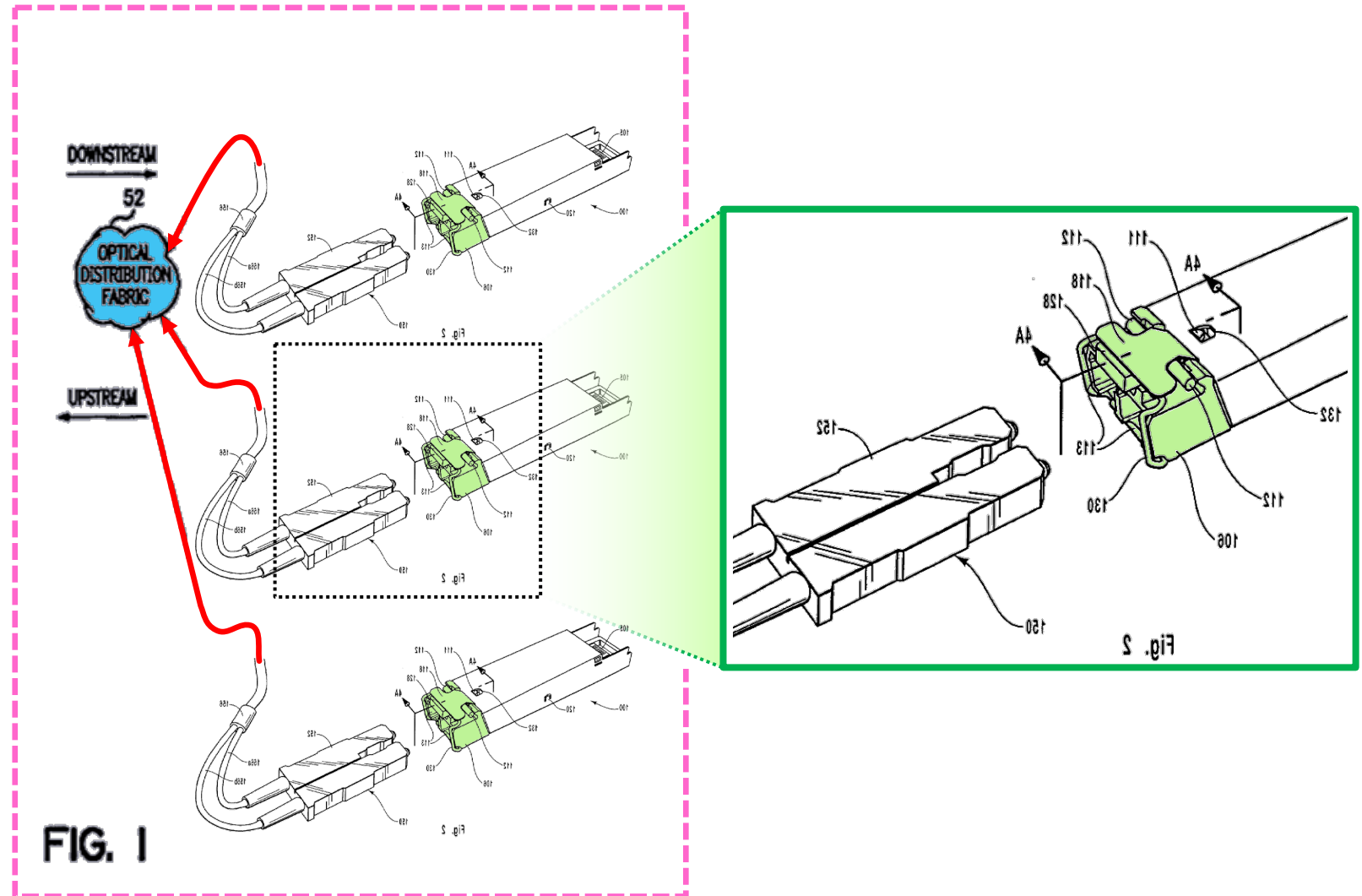
GROUND 1 – SHRAGA + TOGAMI

'754 Patent, Claim [1.A]

A network client optical transceiver module for a **passive optical network**

...

an **optical port** configured to optically couple to one or more **optical fibers** of the passive optical network having one or more **passive optical splitters**;



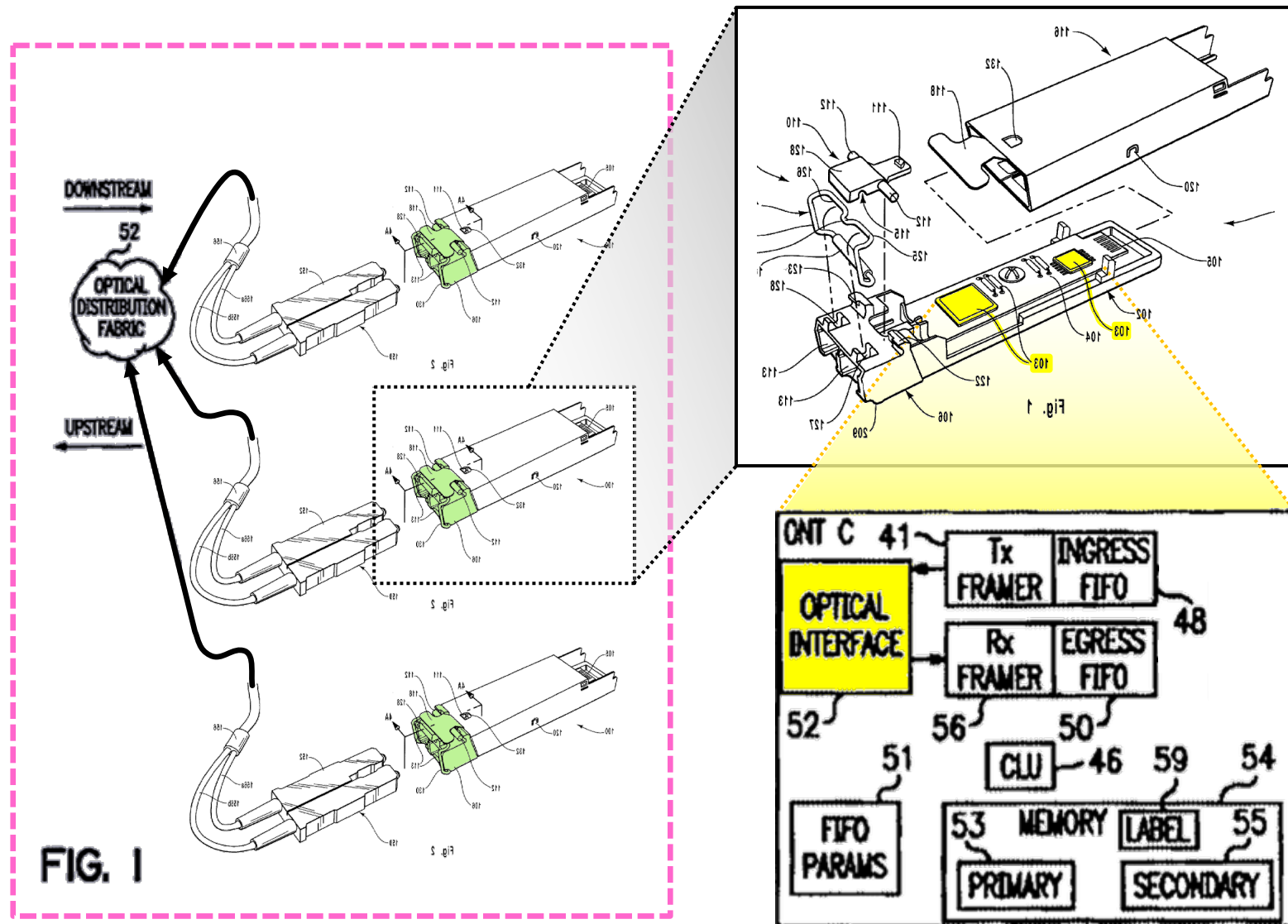
GROUND 1 – SHRAGA + TOGAMI

'754 Patent, Claim [1.B]

A network client optical transceiver module for a **passive optical network**

...

a **bi-directional optical interface block** optically coupled to the **optical port** and configured to perform optical-to-electrical and electrical-to-optical signal conversion;



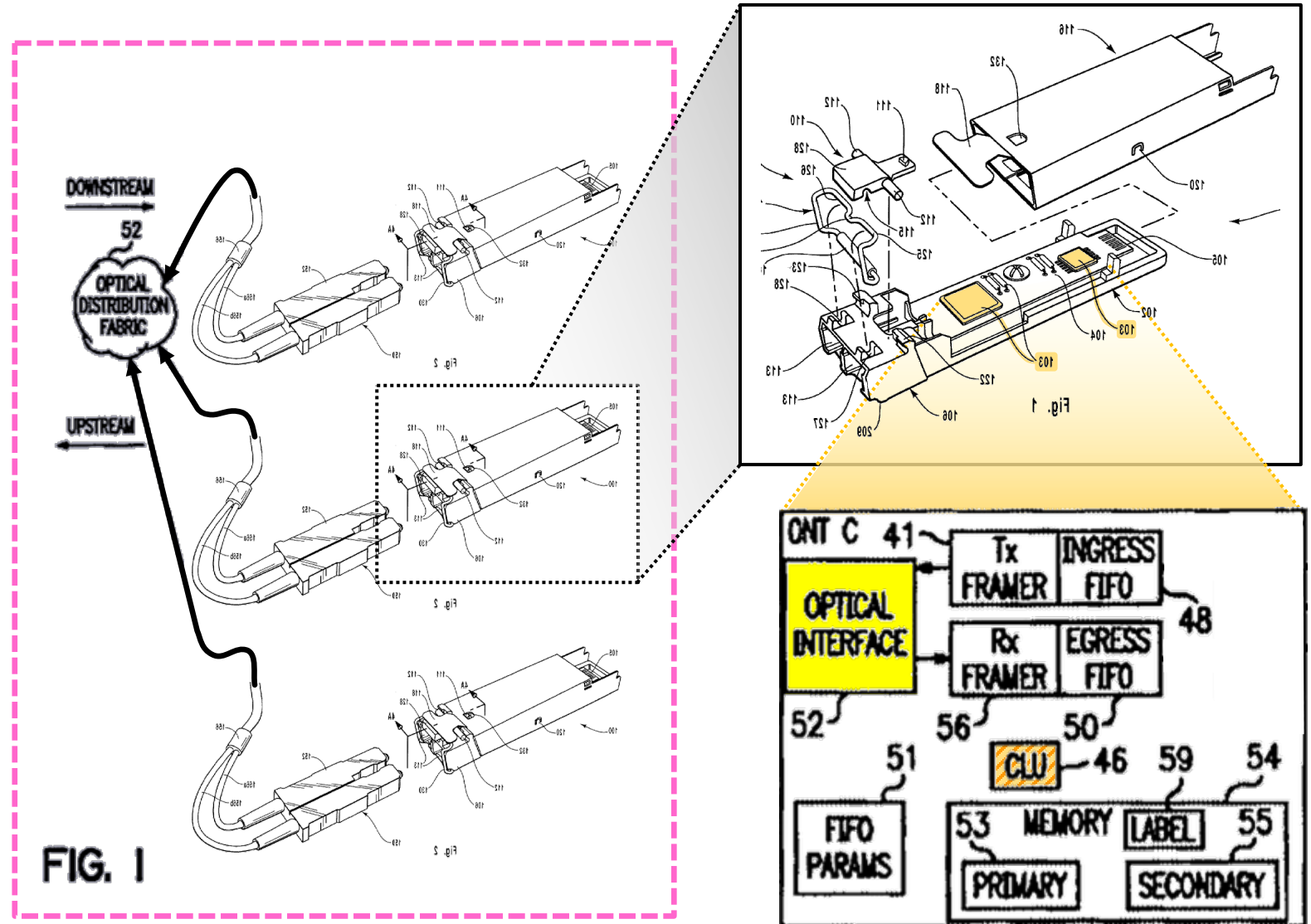
GROUND 1 – SHRAGA + TOGAMI

'754 Patent, Claim [1.C]

A network client optical transceiver module for a **passive optical network**

...

a **control module** electrically coupled to the **bi-directional optical interface** block and configured to receive from the head end of the **passive optical network** data communications representing one or more start times for transmitting data communications to the head end of the **passive optical network** and configured to transmit the data communications to the head end of the **passive optical network** responsive to the start times; and;



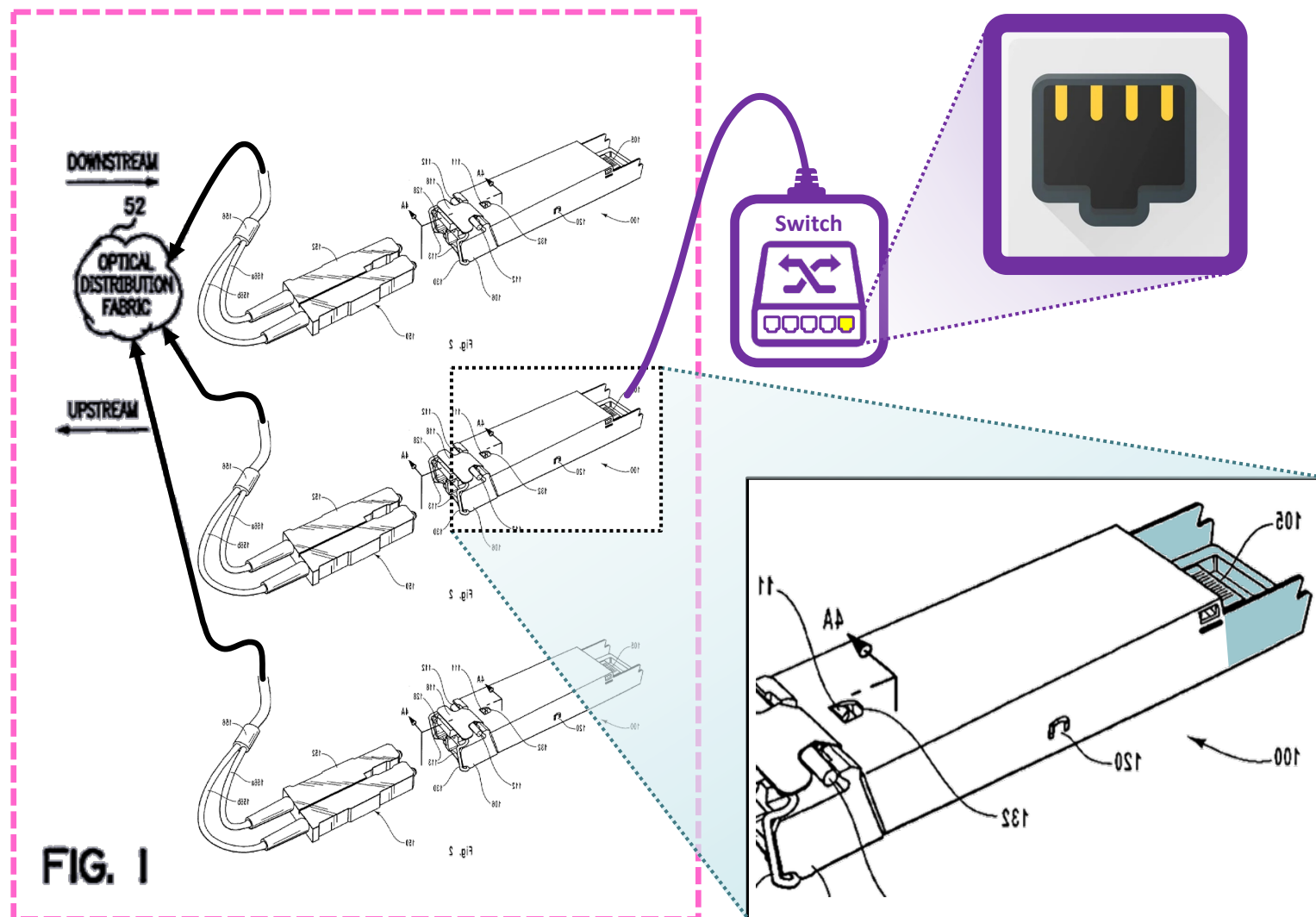
GROUND 1 – SHRAGA + TOGAMI

'754 Patent, Claim [1.D]

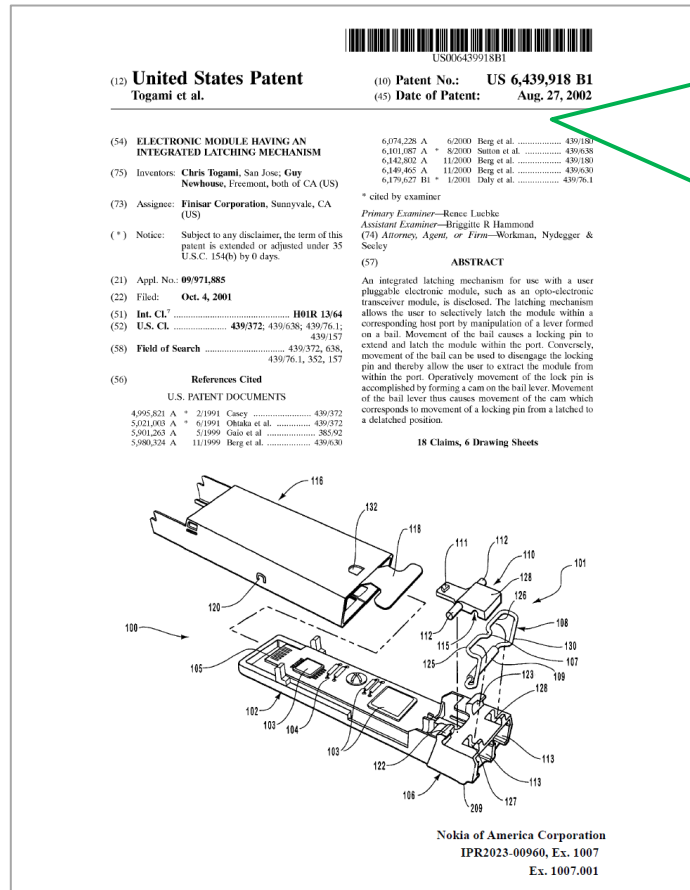
A network client optical transceiver module for a **passive optical network**

...

an **electrical network interface port** electrically coupled to the **control module** and for electrically coupling into the **optical module port** of the **switch or router** and for communicating with the switch or router; whereby



GROUND 1 – SHRAGA + TOGAMI

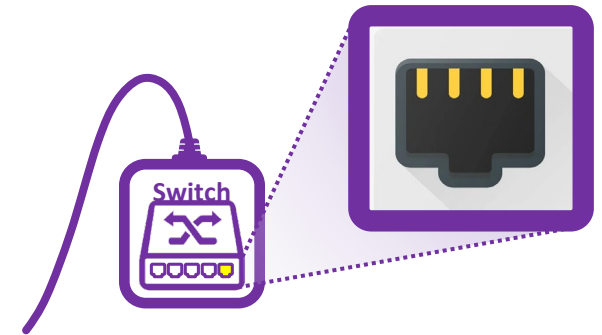


Togami



Togami discloses the “optical module port” of the “switch or router.”

“[The pluggable’s] housing defines an outer periphery that conforms in size and shape to the corresponding host port. In one preferred embodiment, the size and shape correspond to specifications defined by the MSA standard . . .”

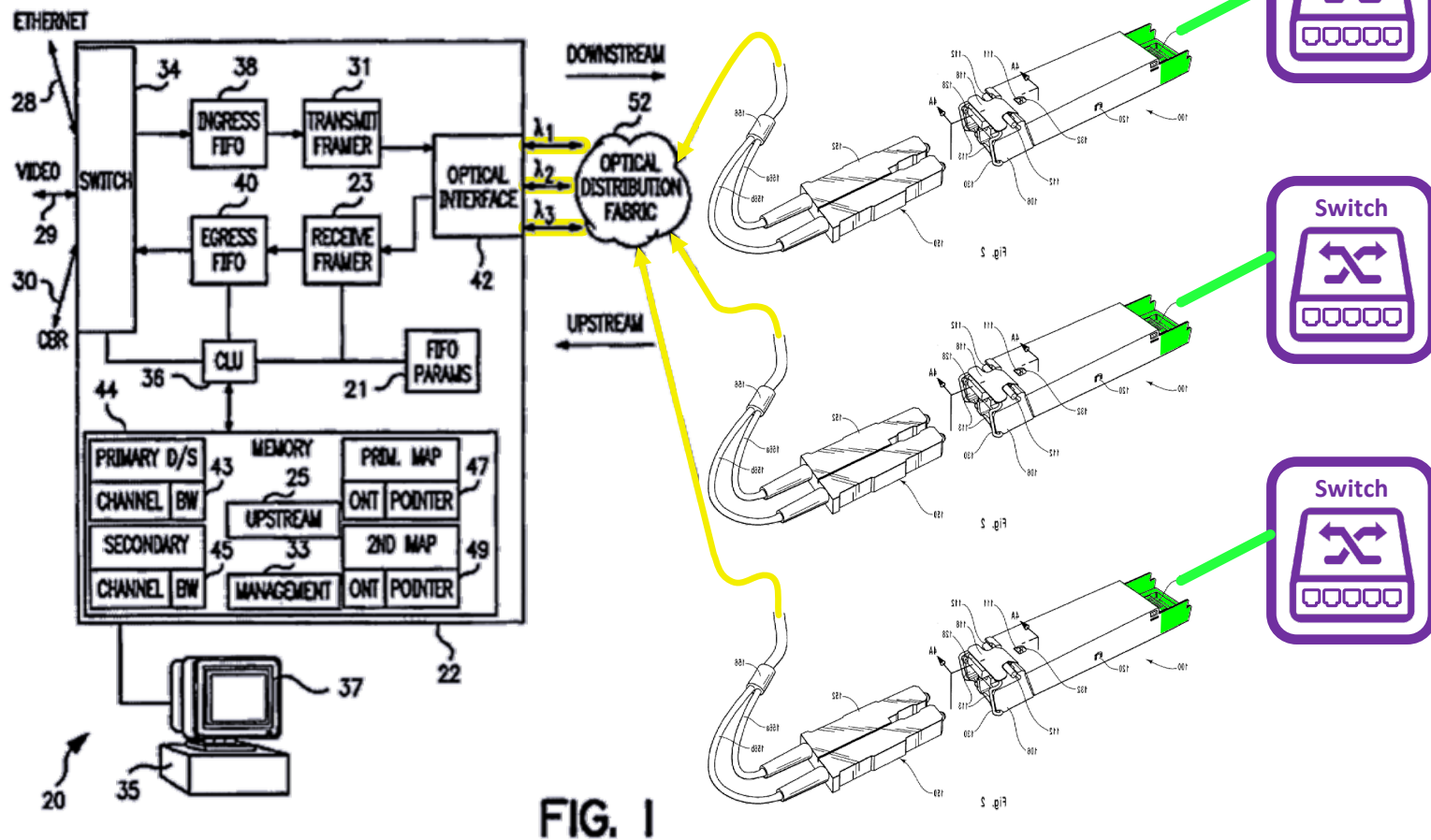


Likewise, Togami discloses that, typically, a pluggable transceiver module is electrically interfaced with a host device via a compatible connection port (i.e., the electrical network interface port) (in yellow below) and that the pluggable optical transceiver module is capable of being operatively received within a compatible port provided by the host device (i.e., the optical module port). Ex. 1003, ¶144; Ex. 1007,

GROUND 1 – SHRAGA + TOGAMI

'754 Patent, Claim [1.E]

... the network client optical transceiver module is configured to optically communicate with the head end of the passive optical network responsive to start times for transmitting data communications to the head end of the passive optical network and the network client optical transceiver module is configured to removably couple to the optical module port of the switch or router and electrically communicate with the switch or router.



GROUND 1 – SHRAGA + TOGAMI

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA OF AMERICA CORPORATION,
Petitioner,

v.

ALEXANDER SOTO AND WALTER SOTO,
Patent Owners.

IPR2023-00960
Patent No. 8,238,754

PATENT OWNERS' RESPONSE

Patent Owners' Response

But for their challenges to Claim 1, Patent Owners do not deny that Shraga + Togami disclose and/or render obvious the dependent claims.	
	Claim 2
	Claim 16
	Claim 3
	Claim 19
	Claim 4
	Claim 20
	Claim 5
	Claim 21
	Claim 6
	Claim 22
	Claim 7
	Claim 23
	Claim 8
	Claim 24
	Claim 11
	Claim 26
	Claim 12
	Claim 27
	Claim 13
	Claim 28
	Claim 14
	Claim 29
	Claim 15
	Claim 30

GROUND 1 – SHRAGA + TOGAMI

UNITED STATES PATENT AND TRADEMARK OFFICE

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Petitioner's Reply



A POSITA would understand that Shraga's computing of ONT ID in the header of its downstream transmission is an "assignment" of the ONT ID.

Shraga makes clear that the "ONT ID" is assigned by the head-end: Shraga states that the head-end constructs header 74 that "comprises a one-byte ONT identification section 88," among other things, for transmission to the ONT with its upstream bandwidth allocation. *See* Ex. 1005, 10:56-11:6; Petition, 42-43; Ex. 1003

GROUND 1 – SHRAGA + TOGAMI

'754 Patent, Claim 9

The **network client optical transceiver module** of claim 1, wherein the control module is configured to receive from the **head end** of the passive optical network an **assigned network identification address** and wherein the assigned network identification address can be used for receiving data addressed to the network client optical transceiver module.

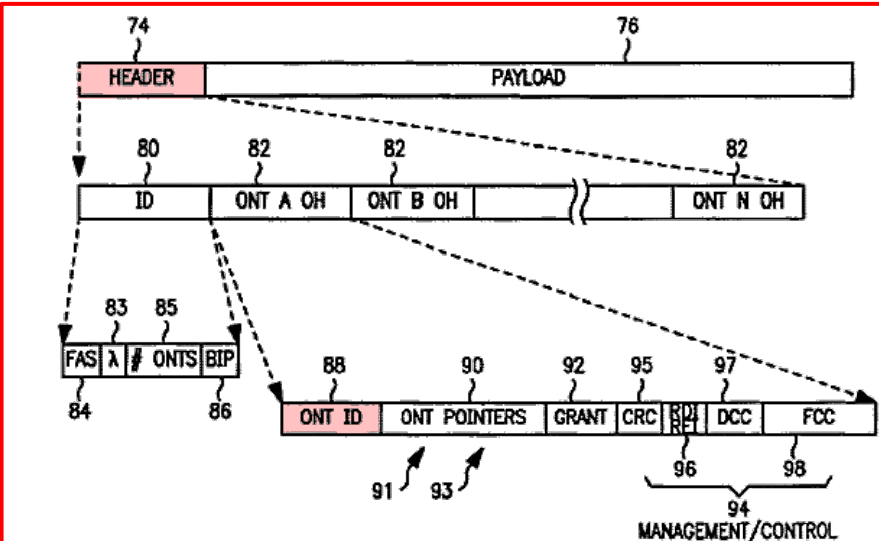


FIG. 3

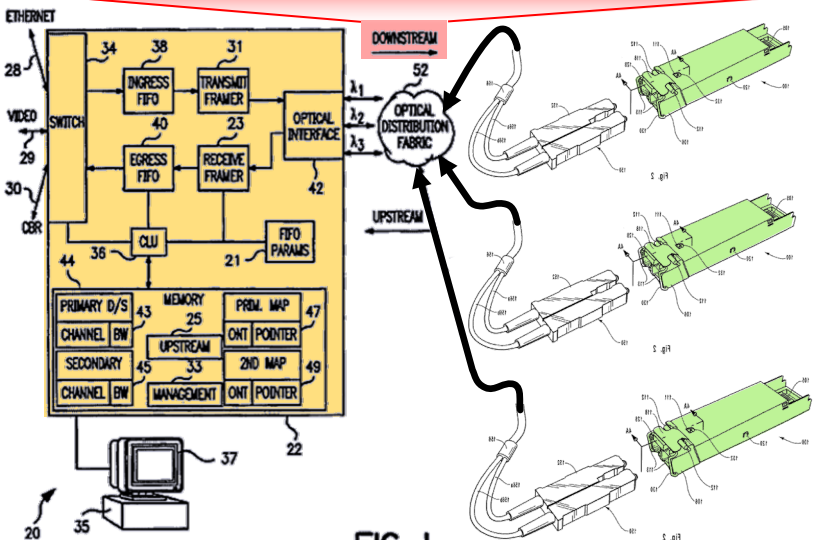


FIG. 1



(12) United States Patent
Fujimori et al.
(45) Date of Patent: Apr. 17, 2007

(54) SYSTEM AND METHOD FOR PROGRAMMABLY ADJUSTING GAIN AND FREQUENCY RESPONSE IN A LOGIC-GATE EFFICIENT THREE CHANNEL SYSTEM

(75) Inventors: Ichiro Fujimori, Irvine, CA (US); David Tuckett, Laguna Niguel, CA (US)

(73) Assignee: Broadcom Corporation, Irvine, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 852 days.

(21) Appl. No. 10/875,547
(22) Filed: Jun. 7, 2005
(65) Prior Publication Data: US 2004/0031518 A1 Feb. 12, 2004

Related U.S. Application Data

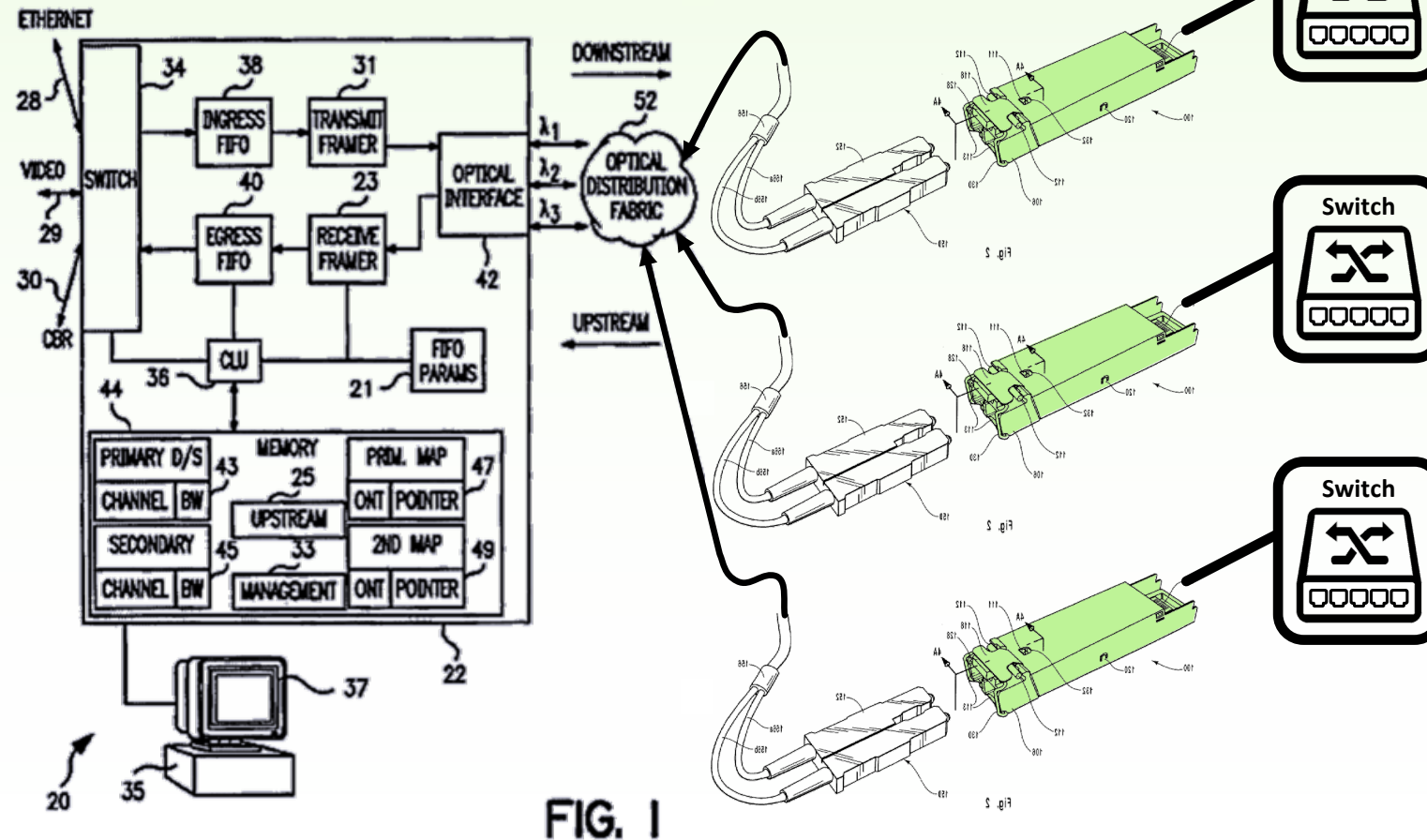
(60) Provisional application No. 60/402,120, filed on Aug. 7, 2002.

(51) Int. Cl. (2006.01)
H03F 3/00 (2006.01)
H03F 1/00 (2006.01)
G06F 1/00 (2006.01)

(52) U.S. Cl. (2006.01)
725/232, 345, 350, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 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948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 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GROUND 1 – SHRAGA + TOGAMI

The combination of Shraga and Togami renders the Challenged Claims obvious.



ROADMAP

01 | Overview of Disputes

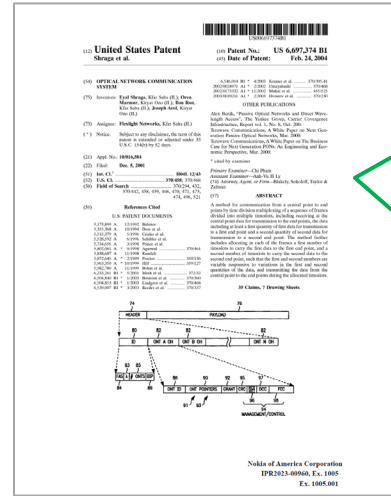
02 | Overview of the Challenged Patent

03 | Motivation to Combine

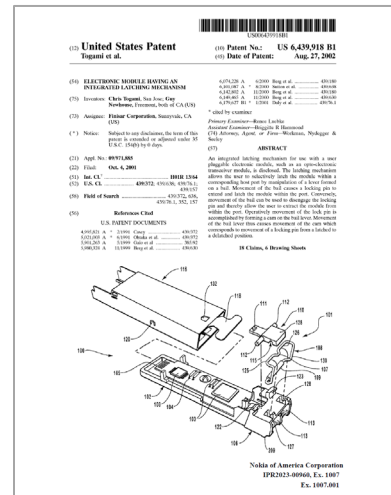
04 | Ground 1 – Shruga + Togami

05 | Ground 2 – Shruga + Togami + G.984.3

GROUND 2 – SHRAGA + TOGAMI + G.984.3



Shraga



Togami

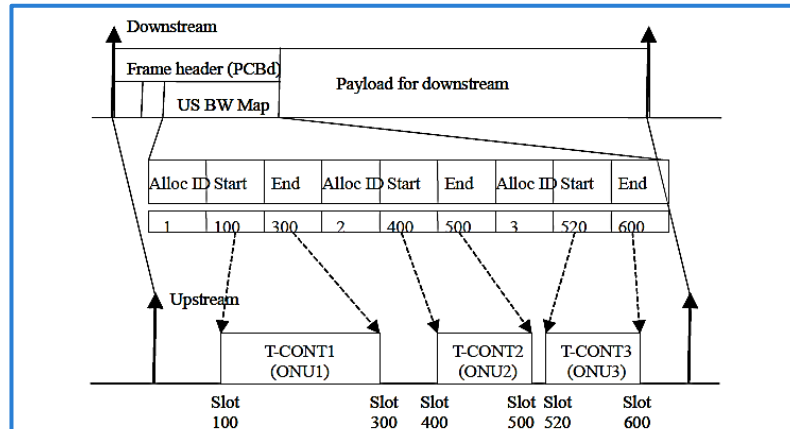
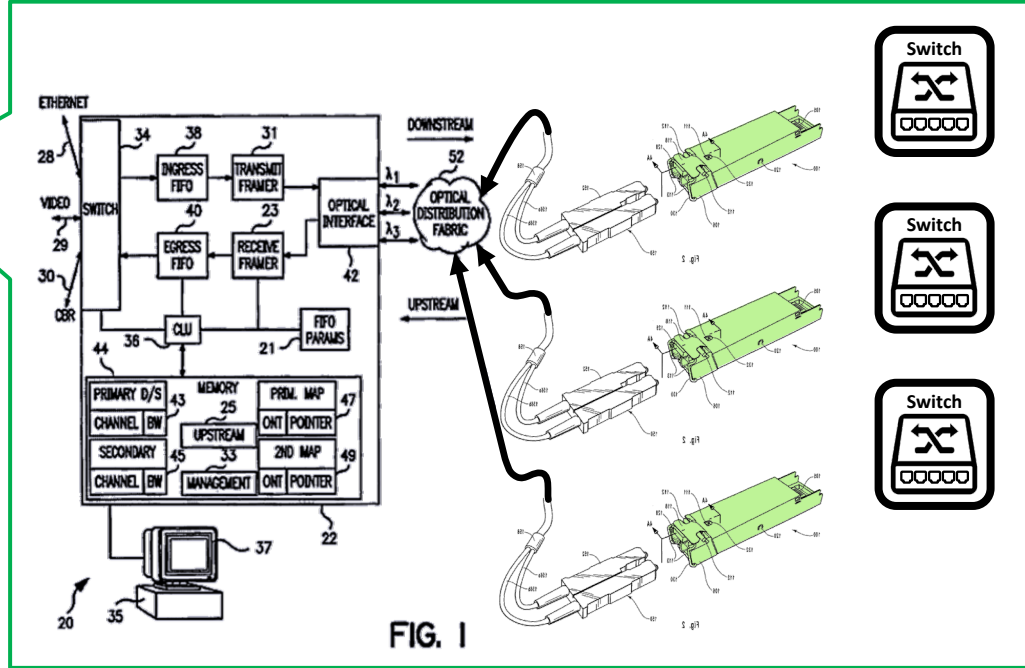


Figure 7-4 – GTC TC media access control concept (one T-CONT per ONU case)

INTERNATIONAL TELECOMMUNICATION UNION

STUDY GROUP 15

TELECOMMUNICATION
STANDARDIZATION SECTOR

TD 7 (PLEN)

STUDY PERIOD 2001-2004

English only

Original: English

Question(s): 2/15

21-31 October 2003

TEMPORARY DOCUMENT

Source: Editor Recommendation G.984.3

Title: Draft new Recommendation 984.3 - Transmission Convergence Layer for Gigabit Passive Optical Networks (for consent)

This TD contains a revision and replaces the text submitted as Contribution COM-C 104.[†]

Summary

This recommendation describes the Transmission Convergence Layer for Gigabit-Capable Passive Optical Networks – a family of flexible access networks capable of providing a range of broad-band and narrow-band services. Systems operating at rates of 1.24416 and 2.48832 Gb/s downstream, and 0.15552, 0.62208, 1.24416, and 2.48832 Gb/s upstream are described.

This recommendation forms an integral part of the G.984 series that, together, specify a single coherent set of access transmission systems.

The G.984 series differs from the previous G.983 series primarily in that higher line bit rates are described. As a consequence of this difference, the G.984 series deals with many technical issues and features in a manner different from the G.983 series. The two series are not interoperable.

Keywords

<Optional>

Introduction

This Recommendation is intended to describe flexible access networks using optical fibre technology. This Recommendation deals with specifications for Gigabit PON Transmission Convergence (GTC) frame, message, ranging method, OAM functionality and security.

Scope

This Recommendation is intended to describe flexible access networks using optical fibre technology. The focus is primarily on a network to support services including POTS, data, video, leased line and distributive services.

† NOTE TSB: References [1] and [12] to IEEE and NIST must be justified according to Rec. A.5.

Nokia of America Corporation

IPR2023-00960, Ex. 1011-1

Ex. 1011-1.001

G.984.3 Draft Recommendation

GROUND 2 – SHRAGA + TOGAMI + G.984.3

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA OF AMERICA CORPORATION,
Petitioner,

v.

ALEXANDER SOTO AND WALTER SOTO,
Patent Owners.

IPR2023-00960
Patent No. 8,238,754

PATENT OWNERS' RESPONSE

Patent Owners' Response

But for their challenges to Ground 1, Claim 1, Patent Owners do not deny that Ground 2 discloses and/or render obvious the dependent claims.



Claim 2	Claim 16
Claim 3	Claim 19
Claim 4	Claim 20
Claim 5	Claim 21
Claim 6	Claim 22
Claim 7	Claim 23
Claim 8	Claim 24
Claim 9	Claim 25
Claim 10	Claim 26
Claim 11	Claim 27
Claim 12	Claim 28
Claim 13	Claim 29
Claim 14	Claim 30
Claim 15	

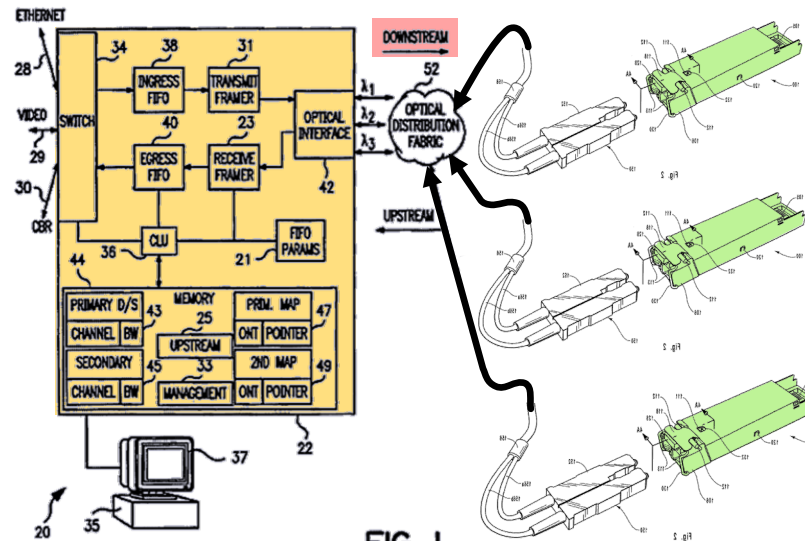
GROUND 2 – SHRAGA + TOGAMI + G.984.3

'754 Patent, Claim 9

The **network client optical transceiver module** of claim 1, wherein the control module is configured to receive from the **head end** of the passive optical network an **assigned network identification address** and wherein the assigned network identification address can be used for receiving data addressed to the network client optical transceiver module.

8.1.3.6.1 Allocation ID field

The **Allocation ID field** contains the 12-bit number that indicates the particular T-CONT that is being granted time on the upstream of the PON. The twelve-bit field is generally unstructured, but a few conventions apply. First, the lowest 254 allocation ID values are used to address the ONU directly. During the ranging procedure, the first Alloc-ID given to the ONU should be in this range. If further



The G.984.3 Draft Recommendation makes even more clear that the head-end (OLT) *assigns* the “network identification address.”

INTERNATIONAL TELECOMMUNICATION UNION
STANDARDIZATION SECTOR
STUDY PERIOD 2001-2004

STUDY GROUP 15
TD 7 (PLEN)
English only
Original: English
21-31 October 2003

Question(s): 2/15
TEMPORARY DOCUMENT
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<Optional>
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Nokia of America Corporation
IPR2023-00960, Ex. 1011-1
Ex. 1011-1.001

G.984.3 Draft Recommendation

MOTIVATION TO COMBINE

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NOKIA OF AMERICA CORPORATION
Petitioner

v.

ALEXANDER SOTO AND WALTER SOTO,
Patent Owners.

Case No. IPR2023-00960
U.S. Patent No. 8,238,754

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

Mail Stop PATENT BOARD
Patent Trial and Appeal Board
US Patent and Trademark Office
PO Box 1450
Alexandria, Virginia 22313-1450

Petitioner's Reply



The prior art references used in the Petition provide more than the minimal disclosures of the '754 Patent.

Despite the Soto Brothers' admissions and the following lack of specific teachings in the '754 Patent describing to a POSITA how to do so, a POSITA with knowledge and understanding of the prior art references presented in this Petition would have found that the combination of Shraga and Togami rendered obvious a pluggable optical module for use in a PON.³ Dr. Prucnal pointed out that the prior art references at issue in this Petition contain engineering drawings and descriptions of the physical packaging of the pluggable optical module that would have enabled a POSITA in possession of Shraga and Togami to make the alleged invention. *Id.*, 157:5-158:15. The '754 Patent, on the other hand, contains no such diagrams and describes the invention only in terms of vague functional blocks. *Id.*

MOTIVATION TO COMBINE

RESTRICTED – ATTORNEYS’ EYES ONLY

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

NEXTGEN INNOVATIONS, LLC	§	CASE NO. 2:22-cv-00307-JRG-RSP (Lead Case)
v.	§	
FUJITSU NETWORK COMMUNICATIONS, INC., et al.	§	CASE NO. 2:22-cv-00306-JRG-RSP (Member Case)
NEXTGEN INNOVATIONS, LLC	§	
v.	§	CASE NO. 2:22-cv-00308-JRG-RSP (Member Case)
INFINERA CORPORATION	§	
NEXTGEN INNOVATIONS, LLC	§	CASE NO. 2:22-cv-00308-JRG-RSP (Member Case)
v.	§	
AT&T SERVICES, INC., et al.	§	CASE NO. 2:22-cv-00309-JRG-RSP (Member Case)
NEXTGEN INNOVATIONS, LLC	§	
v.	§	CASE NO. 2:22-cv-00309-JRG-RSP (Member Case)
NOKIA OF AMERICA CORPORATION, et al.	§	

**OPENING EXPERT REPORT OF DR. PAUL PRUCNAL REGARDING
INVALIDITY OF U.S. PATENT NO. 8,238,754**

**Exhibit
PRUCNAL 002**

Alexander and Walter Soto, Ex. 2023
Nokia of America Corporation v. Alexander and Walter Soto, IPR2023-00960

Ex. 2023



Dr. Prucnal's district court expert report's opinions on enablement and written description are directed to admissions by the inventors that they were not in possession of the invention.

"Tellingly, the inventors and patent owners of the '754 Patent also admit that they did not, at any point before or after the filing of the applications that lead to the '754 Patent, develop a physical embodiment or prototype of the alleged invention."

Q: Did you ever have any working prototypes of products that you were trying to bring to market?

A: We contemplated doing so, but it would require a lot of custom boards, and that was expensive to do, and again, why we were seeking funding.

Q: So you never made a functional product at UBI?

A: Correct.

B3. Timing Requirements of Control and Status I/O

* * *

The timing requirements of the control and status lines are drawn largely from the GBIC standard at the time of writing. They are summarized in Table 2 below:

interface of a pluggable optical transceiver module,” Dr. Willner recognized during deposition that both the SFP and XFP MSA *do* describe the transmission of control and status information at the pluggable modules’ electrical interface. *See* Ex. 2030 ¶76; *see also* Ex. 1040, 111:3-112:7, 122:2-132:5; Ex. 1041 ¶22. Therefore, it is not

CHAPTER 2: XFP ELECTRICAL INTERFACE

In addition to the 2-wire serial interface the XFP module has the following low speed pins for control and status:

- Mod_NR
- Mod_DeSel
- Interrupt
- TX_DIS
- Mod_ABS
- RX_Los
- P_Down/RST.

INF-8074i Rev 1.0

SFF Committee

SFP (Small Formfactor Pluggable) Transceiver

Page 1

SFP MSA

INF-8077i, Revision 4.5

SFF Committee

10 Gigabit Small Form Factor Pluggable Module

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XFP (10 Gbit pluggable module)

XFP MSA