

Exhibit F

EXHIBIT F

Invalidity Claim Chart for U.S. Patent No. 11,854,612 Based on U.S. Patent No. US 8,634,240 to Gavens et al. (“Gavens”)

Claim Language	Citations to Prior Art
[1pre] A method for storing data comprising:	Gavens discloses a method for storing data. Title: Non-volatile memory and method. Claim 1: A method of operating a non-volatile memory.
[1a] maintaining an address table for a memory space containing volatile memory and nonvolatile memory space, wherein the nonvolatile memory space includes both multi-level cell (MLC) space and single level cell (SLC) space and the volatile memory includes a random access volatile memory element;	See Exhibit E ('546 patent) claim element 1a, 1d, and 1e.
[1b] mapping logical and physical	See Exhibit E ('546 patent) claim element 1h.

Claim Language	Citations to Prior Art
addresses adaptable to the system by the address table, wherein the mapping is performed as necessitated by the system to maximize lifetime, and wherein the mapping maps data in at least one of volatile or nonvolatile memories;	
[1c] controlling during Write access operations and Read access operations a plurality of MLC memory modules, each including at least one MLC nonvolatile memory element and at least one SLC memory module including at least one SLC nonvolatile memory element and associated memory space using at least one controller;	See Exhibit E ('546 patent) claim elements 1b and 1c.

Claim Language	Citations to Prior Art
[1d] storing received data within a controller memory associated with the at least one controller;	See Exhibit E ('546 patent) claim element 1f.
[1e] controlling access of the MLC and SLC nonvolatile memory elements and the random access volatile memory element for storage of the received data;	See Exhibit E ('546 patent) claim element 1f.
[1f] transferring the stored received data from the controller memory to a given one of the MLC nonvolatile memory elements in an associated MLC memory module, operable to store the received data in the given one given one of the MLC nonvolatile memory element as stored data;	See Exhibit E ('546 patent) claim element 1f.

Claim Language	Citations to Prior Art
[1g] retaining the received data in the random access volatile memory as retained data associated with the stored data;	See Exhibit E ('546 patent) claim element 1f.
[1h] performing a data integrity test on the stored data in the given one of the MLC nonvolatile memory elements in the associated one of the MLC memory modules after at least a Write access operation performed thereon, the performing of the data integrity test further comprising: reading the stored data to the controller memory; comparing the stored data in the controller memory in the given one of the MLC nonvolatile memory elements to	See Exhibit E ('546 patent) claim element 1g.

Claim Language	Citations to Prior Art
the retained data that was associated with the stored data in the random access volatile memory by the controller during the Write access operation;	
[1i] remapping, responsive to a failure of the data integrity test performed on the stored data by the controller, the address space to a different physical range of addresses; and	See Exhibit E ('546 patent) claim element 1i.
[1j] transferring data corresponding to the retained data to those remapped physical address from those physical addresses determined to have failed the data integrity test.	See Exhibit E ('546 patent) claim element 1i.
[2] The method for storing data of claim 1, wherein the	See Exhibit E ('546 patent) claim 2.

Claim Language	Citations to Prior Art
controller is a software module, or a firmware module containing software updates.	
[3] The method for storing data of claim 1 further comprising embedding at least one of the random access volatile memory or the MLC and SLC nonvolatile memory elements in the at least one controller.	See Exhibit E ('546 patent) claim 3.
[4] The method for storing data of claim 1, wherein the MLC and SLC nonvolatile memory elements comprise flash memory.	See Exhibit A1 ('298 patent) claims 4 and 5.
[5] The method for storing data of claim 1, wherein the random access volatile memory element is dynamic	See Exhibit E ('546 patent) claim 5.

Claim Language	Citations to Prior Art
random access memory.	
[6] The method storing data of claim 1, wherein the random access volatile memory element is static random access memory.	See Exhibit E ('546 patent) claim 6.