

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

INFINITE DATA, LLC,)	
)	
Plaintiff,)	
)	
v.)	C.A. No. 14-cv-391-RGA
)	
INTEL CORPORATION AND QLOGIC)	JURY TRIAL DEMANDED
CORPORATION,)	
)	
Defendants.)	

FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

This is an action for patent infringement in which Plaintiff Infinite Data, LLC (“Infinite Data”) makes the following allegations against Defendants Intel Corporation and QLogic Corporation (collectively, “Defendants”):

PARTIES

1. Plaintiff Infinite Data, LLC is a Delaware limited liability company.
2. On information and belief, Defendant Intel Corporation (“Intel”) is a Delaware corporation with its principal place of business at 2200 Mission College Boulevard, Santa Clara, California. On information and belief, Intel can be served through its registered agent, Corporation Trust Company, 1209 Orange Street, Wilmington, Delaware 19801.
3. On information and belief, Defendant QLogic Corporation (“QLogic”) is a Delaware corporation with its principal place of business at 26650 Aliso Viejo Parkway, Aliso Viejo, CA 92656. On information and belief, QLogic can be served through its registered agent, Corporation Trust Company, 1209 Orange Street, Wilmington, Delaware 19801.

JURISDICTION AND VENUE

4. This action arises under the patent laws of the United States, 35 U.S.C. § 1, et seq., including § 271. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

5. This Court has personal jurisdiction over Defendants because, among other reasons, Defendants are incorporated in Delaware, have done business in this District, have committed and continue to commit acts of patent infringement in this District, and/or have

harm and continue to harm Infinite Data in this District, by, among other things, using, selling, offering for sale, and/or importing infringing products and services in this District.

6. Venue is proper in this District under 28 U.S.C. §§ 1391(b)-(d) and 1400(b) because, among other reasons, Defendants are subject to personal jurisdiction in this District, and have committed and continue to commit acts of patent infringement in this District. On information and belief, for example, Defendants have used, sold, offered for sale, and/or imported infringing products in this District.

COUNT I

INFRINGEMENT OF U.S. PATENT NO. 5,790,530

7. United States Patent No. 5,790,530 (“the Infinite Data Patent” or “the ’530 Patent”) was invented by Sang-Man Moh, Sang-Seok Shin, and Suk-Han Yoon of the Electronics and Telecommunications Research Institute (“ETRI”). ETRI is the national leader in Korea in the research and development of information technologies. Since its inception in 1976, ETRI has developed new technologies in 4M DRAM computer memory, CDMA and 4G LTE cellular phone communications, LCD displays, as well as large-scale computer storage, the technology at issue in this case. ETRI employs over 1730 research/technical staff, of whom 93% hold a post-graduate degrees and 41% have earned a doctoral degree in their technological field. Over the last five years, ETRI has applied for a total of 18,639 patents, has contributed 7,548 proposals that have been adopted by international and domestic standard organizations, and has published over 1,300 articles in peer-reviewed technology publications.

8. Infinite Data is the exclusive licensee of the ’530 Patent, entitled “Message-passing multiprocessor system.” The application for the Infinite Data Patent was filed on December 15, 1995, with a priority date of at least November 18, 1995. The patent issued on August 4, 1998. Pursuant to Infinite Data’s exclusive license, Infinite Data has all substantial rights regarding the ’530 Patent, including the exclusive right to bring suit for infringement of the ’530 Patent. A true and correct copy of the Infinite Data Patent is attached as Exhibit A.

9. Intel has been and now is directly infringing one or more claims of the Infinite Data Patent, in this judicial District and elsewhere in the United States, by, among other things, making, using, importing, offering for sale, and/or selling network interfaces for computer

systems in which a plurality of nodes are connected with one another through an interconnection network for communicating messages which include data messages, each node including at least one processor and a local shared memory which are connected with one another through a node bus and connected through the network interface to the interconnection network, the network interface comprising: a local bus which provides a parallel path for transferring data in said network interface; a bus connection means for connecting the node bus and said local bus; a sending means connected to said local bus for packetizing messages requested by the processor, and if a data message, for reading the data portion of the message out of the local shared memory through said local bus, the bus connection means and the node bus to produce a packet, and sending the packet to the interconnection network, said sending means including: a temporary storage means for transmission for temporarily storing data, to the interconnection network; a transfer control means for controlling a series of operations thereof by packetizing the messages for transfer requested by the processor, to send the packet to the interconnection network; and a direct memory access means for directly reading out the data portion of the data messages from the local shared memory; and a receiving means connected to said local bus for receiving a packet from the interconnection network, restoring the packet to produce a restored message and, if a data message, storing the data portion of the restored message in the local shared memory through said local bus, the bus connection means and the node bus. The infringing products include, for example, Intel Host Channel Adapter cards (“HCAs”) that operate according to the InfiniBand specification and use Remote Direct Memory Access (“RDMA”). The infringing Intel HCAs include Intel True Scale Fabric Host Adapter QLE7300 Series (including QLE7340 and QLE7342).

10. QLogic had been directly infringing one or more claims of the Infinite Data Patent, in this judicial District and elsewhere in the United States, by, among other things, making, using, importing, offering for sale, and/or selling network interfaces for computer systems in which a plurality of nodes are connected with one another through an interconnection network for communicating messages which include data messages, each node including at least one processor and a local shared memory which are connected with one another through a node bus and connected through the network interface to the interconnection network, the network

interface comprising: a local bus which provides a parallel path for transferring data in said network interface; a bus connection means for connecting the node bus and said local bus; a sending means connected to said local bus for packetizing messages requested by the processor, and if a data message, for reading the data portion of the message out of the local shared memory through said local bus, the bus connection means and the node bus to produce a packet, and sending the packet to the interconnection network, said sending means including: a temporary storage means for transmission for temporarily storing data, to the interconnection network; a transfer control means for controlling a series of operations thereof by packetizing the messages for transfer requested by the processor, to send the packet to the interconnection network; and a direct memory access means for directly reading out the data portion of the data messages from the local shared memory; and a receiving means connected to said local bus for receiving a packet from the interconnection network, restoring the packet to produce a restored message and, if a data message, storing the data portion of the restored message in the local shared memory through said local bus, the bus connection means and the node bus. The infringing products include, for example, QLogic HCAs that operate according to the InfiniBand specification and use RDMA. The infringing QLogic HCAs included HP BLc QLogic 4X QDR IB Mezzanine HCA, QLogic QLE7342 4X QDR IB PCI-e G2 HCA, QLogic QLE7340 Single-Port 40 Gbps QDR InfiniBand, and QLogic 7200 20Gb DDR HCA.

11. Intel has had knowledge of the '530 Patent since at least June 7, 2013 or shortly thereafter, when Infinite Data served its Complaint against The Boeing Company in Case No. 13-252-RGA (D. Del.) asserting infringement of the '530 Patent. Upon information and belief, Intel had such knowledge when The Boeing Company brought Infinite Data's Complaint to Intel's attention and requested indemnification from Intel.

12. With knowledge of the '530 Patent as described in Paragraph 11 above, Intel has induced its customers, users of Intel HCAs, in a message-passing computer system in which a plurality of source nodes and destination nodes are connected with one another through an interconnection network for communicating messages, and more than one of processors and a local shared memory, which are connected with one another through a node bus, and are connected through a network interface to the interconnection network, to practice a method of

transmitting messages at the source nodes comprising the steps of: a) requesting transfer of the messages to the network interface at the source node by the processor at the source node, wherein the requesting step a) comprises the step of storing control message or data transfer information of data message into the temporary storage means for transmission in the network interface at the source node by the processor at the source node in order to request the transfer of the messages; b) reading out the data portion of data message to be transferred from the local shared memory by the network interface at the source node; c) packetizing the messages by the network interface at the source node to produce a message packet and transfer the message packet to the destination node; d) receiving an acknowledgement packet from the destination node by the network interface at the source node; and e) enabling a transfer completing interrupt.

13. For example, Intel distributes the Intel® True Scale Fabric Host Channel Adapter 7340 with a printed QLogic Quick Start Guide, which instructs its customers on page 4, “The QLogic OFED+ host software can be downloaded from the QLogic web site, www.qlogic.com. Click the **Downloads** tab, and follow the links for your adapter model.” A customer reading these instructions would understand that he or she should obtain the host software from the Intel website instead, since the product now bears the Intel name.

14. Intel makes available for download Host Drivers & Software for the Intel® True Scale Fabric Host Channel Adapter 7340 on Intel’s website at <https://downloadcenter.intel.com/Default.aspx?lang=eng>:

<https://downloadcenter.intel.com/Default.aspx?lang=eng>

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Red Hat Enterprise Linux 6*(7)
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SUSE Linux *(5)

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Display results per page: 10

Sort by **Relevance** Date Status

Title	Date	Version	Status	Type
Intel® True Scale Fabric Host Channel Adapter Host Drivers & Software v7.2.0.0.8 Intel® True Scale Fabric Host Channel Adapter Host Drivers & Software (OFED+) for RHEL6, RHEL5, SLES11, Rocks Roll, & PCM Kits OS: OS Independent, Red Hat Enterprise Linux 5*, Red ... More>	3/5/2014	7.2.0.0.8	Latest	Drivers
Intel® True Scale Fabric Host Channel Adapter Host Drivers & Software v7.2.0.2.8	3/5/2014	7.2.0.2.8	Previously released	Drivers

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The host drivers and software that Intel instructs its customers to download and install include numerous components. By default, components that will be installed include, *inter alia*, OFED SRP, which refers to the SCSI RDMA Protocol:

```

root@localhost:~/IntelIB-Basic.RHEL6-x86_64.7.2.2.0.8
File Edit View Search Terminal Help

Intel IB Install (7.2.2.0.8 release) Menu

Please Select Install Action (screen 1 of 3):
0) OFED IB Stack [ Install ][Available] 1.5.4.1.73
1) True Scale HCA Libs [ Install ][Available] 3.2.0.0.32129
2) OFED mlx4 Driver [ Install ][Available] 1.5.4.1.73
3) IB Tools [ Install ][Available] 7.2.2.0.6
4) OFED IB Development [ Install ][Available] 1.5.4.1.73
5) FastFabric [Don't Install][Not Avail]
6) OFED IP over IB [ Install ][Available] 1.5.4.1.73
7) OFED IB Bonding [Don't Install][Not Avail]
8) OFED SRP [ Install ][Available] 1.5.4.1.73
9) IFS FM [Don't Install][Not Avail]
a) MVAPICH (gcc) [ Install ][Available] 1.5.4.1.73
b) MVAPICH2 (gcc) [ Install ][Available] 1.5.4.1.73
c) OpenMPI (gcc) [ Install ][Available] 1.5.4.1.73
d) MVAPICH/PSM (gcc) [ Install ][Available] 1.2.0-3635

N) Next Screen
P) Perform the selected actions I) Install All
R) Re-Install All U) Uninstall All
X) Return to Previous Menu (or ESC)

Intel IB Install (7.2.2.0.8 release) Menu

Please Select Install Action (screen 2 of 3):
0) MVAPICH/PSM (PGI) [ Install ][Available] 1.2.0-3635
1) MVAPICH/PSM (Intel) [ Install ][Available] 1.2.0-3635
2) MVAPICH2/PSM (gcc) [ Install ][Available] 1.7-6.2012svn5140
3) MVAPICH2/PSM (PGI) [ Install ][Available] 1.7-6.2012svn5140
4) MVAPICH2/PSM (Intel) [ Install ][Available] 1.7-6.2012svn5140
5) OpenMPI/PSM (gcc) [ Install ][Available] 1.4.3-1
6) OpenMPI/PSM (PGI) [ Install ][Available] 1.4.3-1
7) OpenMPI/PSM (Intel) [ Install ][Available] 1.4.3-1
8) SHMEM [ Install ][Available] 3.2-32129.1162_rhel6_qlc
9) MPI Source [ Install ][Available] 1.5.4.1.73
a) OFED uDAPL [ Install ][Available] 1.5.4.1.73
b) OFED RDS [ Install ][Available] 1.5.4.1.73
c) OFED SRP [ Install ][Available] 1.5.4.1.73
d) OFED SRP Target [Don't Install][Available] 1.5.4.1.73

N) Next Screen
P) Perform the selected actions I) Install All
R) Re-Install All U) Uninstall All
X) Return to Previous Menu (or ESC)

```

After installing OFED SRP,

```

Installing OFED SRP 1.5.4.1.73 release...
installing srptools-0.0.4-0.1.gcc64c.x86_64...
Enable OFED SRP High Availability daemon (SRPHA_ENABLE)? [n]: █

```

OFED SRP will be automatically started by default (i.e., the Autostart Option for OFED SRP is “Enable[d]” by default):

```

root@localhost:~/IntelIB-Basic.RHEL6-x86_64.7.2.2.0.8
File Edit View Search Terminal Help
Intel IB Autostart (7.2.2.0.8 release) Menu

Please Select Autostart Option:
0) OFED IB Stack (openibd)           [Enable ]
1) OFED mlx4 Driver (openibd)        [Enable ]
2) IB Port Monitor (iba_mon)         [Disable]
3) S20 Port Tuner (s20tune)          [Disable]
4) Distributed SA (dist_sa)          [Disable]
5) OFED IP over IB (openibd)         [Enable ]
6) OFED SDP (openibd)              [Enable ]
7) OFED RDS (openibd)               [Enable ]
8) OFED SRP (openibd)             [Enable ]
9) OFED SRP Target (openibd)         [Disable]
a) OFED iWARP (openibd)             [Enable ]
b) OFED Open SM (opensmd)           [Disable]

P) Perform the autostart changes
S) Autostart All                    R) Autostart None
X) Return to Previous Menu (or ESC)

```

15. In instructing its customers to download and install the Host Drivers & Software for Intel HCAs made available to its customers on Intel's website, Intel specifically intended to encourage its customers to download and install the Host Drivers & Software according to the default settings programmed by Intel, knowing that the operation of Intel HCAs with Intel's Host Drivers & Software in their default configuration constituted infringement of the '530 patent.

16. With knowledge of the '530 Patent as described in Paragraph 11 above, Intel has contributed and continues to contribute to the infringement by others, including the end users of Intel HCAs such as The Boeing Company, by selling and offering to sell Intel HCAs knowing that Intel HCAs constitute a material part of the inventions of the '530 Patent, knowing that Intel HCAs are especially made or adapted to enable practice of RDMA in InfiniBand-networked computer systems in a manner that infringes the '530 Patent, knowing that end users of Intel HCAs have used and continue to use them to practice RDMA in InfiniBand-networked computer systems in a manner that infringes the '530 Patent, and knowing that Intel HCAs are not staple articles or commodities of commerce and are not suitable for substantial non-infringing uses.

17. As described above, Intel's continued acts of direct, inducing, and contributory infringement, with knowledge of the '530 Patent, have been willful.

18. By engaging in the conduct described herein, Intel and QLogic have injured Infinite Data and are thus liable for infringement of the '530 Patent pursuant to 35 U.S.C. § 271.

19. Intel and QLogic have committed these acts of infringement without license or authorization.

20. As a result of Intel's and QLogic's infringement of the '530 Patent, Infinite Data has suffered monetary damages and is entitled to a money judgment in an amount adequate to compensate for Intel's infringement, but in no event less than a reasonable royalty for the use made of the invention by Intel and QLogic, together with interest and costs as fixed by the Court, and Infinite Data will continue to suffer damages in the future unless Intel's infringing activities are enjoined by this Court.

21. Infinite Data has also suffered and will continue to suffer severe and irreparable harm unless this Court issues a permanent injunction prohibiting Intel, its agents, servants, employees, representatives, and all others acting in active concert therewith from infringing the '530 Patent.

PRAYER FOR RELIEF

Infinite Data respectfully requests that this Court enter:

- A. A judgment in favor of Infinite Data that Intel has infringed, directly and/or indirectly by way of inducing infringement and/or contributory infringement, the '530 Patent, and that such infringement has been willful;
- B. A judgment in favor of Infinite Data that QLogic has directly infringed the '530 Patent;
- C. A permanent injunction enjoining Intel and its officers, directors, agents, servants, affiliates, employees, divisions, branches, subsidiaries, parents, and all others acting in active concert therewith from infringement of the '530 Patent, or such other equitable relief the Court determines is warranted;
- D. A judgment and order requiring Intel and QLogic to pay Infinite Data its damages, costs, expenses, and prejudgment and post-judgment interest for their infringement of the '530 Patent as provided under 35 U.S.C. § 284;
- E. A judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285 and awarding to Infinite Data its reasonable attorneys' fees against Intel;

- F. A judgment and order requiring Intel and QLogic to provide an accounting and to pay supplemental damages to Infinite Data, including without limitation, pre-judgment and post-judgment interest; and
- G. Any and all other relief to which Infinite Data may be entitled.

DEMAND FOR JURY TRIAL

Infinite Data, under Rule 38 of the Federal Rules of Civil Procedure, requests a trial by jury of any issues so triable by right.

Dated: April 16, 2014

Respectfully submitted,

FARNAN LLP

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