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MELLANOX TECHNOLOGIES DENMARK APS

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

IPTRONICS INC. and MELLANOX
TECHNOLOGIES DENMARK APS,

Plaintiffs,

v.

AVAGO TECHNOLOGIES, U.S. INC., AVAGO
TECHNOLOGIES GENERAL IP (SINGAPORE)
PTE. LTD., AVAGO TECHNOLOGIES
TRADING LTD., AVAGO TECHNOLOGIES
INTERNATIONAL SALES PTE. LTD., AND
AVAGO TECHNOLOGIES FIBER IP
(SINGAPORE) PTE. LTD.,

Defendants.

CASE NO.

**COMPLAINT FOR ANTITRUST
VIOLATIONS**

DEMAND FOR JURY TRIAL

PUBLIC REDACTED VERSION

COMPLAINT

Plaintiffs IPtronics Inc. and Mellanox Technologies Denmark ApS (“MTD”) (collectively “IPtronics” or “Plaintiffs”), by their undersigned attorneys, and for their Complaint against the captioned defendants, Avago Technologies U.S. Inc. (“Avago U.S.”), Avago Technologies General IP (Singapore) Pte. Ltd. (“Avago General IP”), Avago Technologies Trading Ltd. (“Avago Trading”), Avago Technologies International Sales Pte. Ltd. (“Avago Sales”), and Avago Technologies Fiber IP (Singapore) Pte. Ltd. (“Avago Fiber IP”) (collectively, the “Avago Defendants”), hereby aver as follows:

NATURE OF THIS ACTION

1. This is a civil action arising in part under the Clayton Act, 15 U.S.C. §§ 15 and 26, Sections 2 and 4 of the Sherman Act, 15 U.S.C. §§ 2 and 4, as it relates to the Avago Defendants’ anticompetitive and attempted monopolization conduct, as set forth more fully below.

THE PARTIES

2. Mellanox Technologies Denmark ApS is a corporation organized and existing under the laws of the Kingdom of Denmark, having its principal place of business at Ledreborg Allé 130B, 4000 Roskilde, Denmark. Before the acquisition of its shares by Mellanox Technologies Ltd. effective July 1, 2013, Mellanox Technologies Denmark ApS was known as IPtronics A/S.

3. IPtronics Inc. is a wholly-owned subsidiary of Mellanox Technologies Denmark ApS and a corporation organized and existing under the laws of the state of Delaware, having its principal place of business at 1370 Willow Road, 2nd Floor, Menlo Park, CA 94025. IPtronics Inc. was dissolved in or around December 2013 but, pursuant to Delaware corporate law, continues to exist for three years therefrom for purposes of asserting or defending against claims.

4. On information and belief, Avago U.S. is a corporation organized under the laws of the State of Delaware and having a principal place of business at 350 West Trimble Road, Building 90, San Jose, California 95131-1008.

5. On information and belief, Avago General IP is a corporation organized under the laws of Singapore and having a principal place of business at No. 1 Yishun Avenue 7, Singapore 768923.

6. On information and belief, Avago Trading is a corporation organized under the laws of Mauritius and having a principal place of business at 4th Floor, IBL House, Caudan, Port Louis, Mauritius.

7. On information and belief, Avago Sales is a corporation organized under the laws of Singapore and having a principal place of business at 8 Cross Street, #11-00 PWC Building, Singapore 048424.

8. On information and belief, Avago Fiber IP is a corporation organized and existing under the laws of Singapore and having a principal place of business at No. 1 Yishun Avenue 7, Singapore 768923.

9. On information and belief, Avago U.S., Avago General IP, Avago Trading, Avago Sales, and Avago Fiber IP (collectively, “Avago”) are subsidiaries of Avago Technologies Ltd., co-headquartered and having a principal place of business within this judicial district at 350 West Trimble Road, Building 90, San Jose, California 95131.

JURISDICTION

10. These claims arise under federal law, and this Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1337, the Clayton Act, 15 U.S.C. §§ 15 and 26, and Sections 2 and 4 of the Sherman Act, 15 U.S.C. §§ 2 and 4.

11. This Court has personal jurisdiction over each and all of the Avago Defendants because they have consented to jurisdiction in the state of California and to jurisdiction in this Court by bringing in this Court the case styled *Avago Technologies U.S., Inc., et al. v. IPtronics Inc., et al.*, Case No. 5:10-CV-02863-EJD (PSG), in which they assert infringement by IPtronics of the same patent that is the basis of IPtronics' claim for antitrust violations herein, and because at least some of the complained-of acts occurred in this judicial district.

12. This Court further has personal jurisdiction over Defendant Avago U.S. because that defendant resides within this Judicial District and does business within the State of California and within this Judicial District.

VENUE

13. Venue is proper in this Judicial District at least pursuant to at least 15 U.S.C. § 22 and 28 U.S.C. § 1391(b) because, upon information and belief, various acts and transactions constituting at least a substantial portion of the claims arose in this Judicial District. Venue is also proper in this Judicial District because the Avago Defendants are subject to personal jurisdiction in this Judicial District pursuant to 28 U.S.C. § 1391(c). Venue is further proper in this Judicial District by virtue of the Avago Defendants' admission in their complaint in Case No. 5:10-CV-02863-EJD (PSG) that venue is proper in this Judicial District.

14. The Avago Defendants are engaged in, and their activities substantially affect, interstate and foreign commerce through their activities referenced herein, some or all of which were conducted through the United States mail and other instrumentalities of interstate commerce and in connection with activities crossing State lines.

INTRADISTRICT ASSIGNMENT

15. Pursuant to Civil L.R. 3-2(c), this case is not subject to district-wide assignment.

FACTUAL BACKGROUND**The ITC Investigation**

16. On September 24, 2012, the Avago Defendants filed a complaint in the International Trade Commission ("ITC") under 19 U.S.C. §1337 asserting against IPtronics claims for infringement of U.S. Patent No. 6,947,456 ("the '456 patent"). The Avago Defendants' ITC Complaint alleged that IPtronics' vertical cavity surface emitting laser ("VCSEL") driver products and evaluation boards infringe certain claims of the '456 patent. The '456 patent is titled "Open-Loop Laser Driver having an Integrated Digital Controller" and relates to laser drivers for generating drive waveforms to drive a single VCSEL or an array of VCSELs for use in an optical communications network. Each asserted claim in the '456 patent includes two separate limitations requiring that the drive waveform contain "a negative peak portion" and "at least one parameter for affecting the negative peak portion of the drive waveform."

17. VCSELs and VCSEL drivers are components used in transceiver (i.e., a transmitter and a receiver) modules and/or active optical cables ("AOC") to facilitate high-speed, optical

1 communication of data. VCSEL drivers in AOCs or transceiver modules are integrated circuits that
2 convert data received from a processor into an electrical signal. The drive waveform is the
3 representation of that electrical signal sent by the VCSEL driver to the VCSEL. A VCSEL is a
4 complex semiconductor laser diode that converts that electrical signal into optical output; in other
5 words, light. IPtronics VCSEL drivers are capable of operation with a wide range of VCSELs,
6 including single mode and multimode, leaving it up to the customer to decide how to use the driver.
7 That optical output, in the form of an optical signal, is then transmitted to an optical fiber. The
8 optical fiber carries the optical signal to a receiving point (usually a photodiode) in a receiver, where
9 the optical signal is then converted back into an electric signal in the receiver. Afterwards it is sent
10 to a decoder and converted back to data in a destination computer. The optical signal of the VCSEL
11 is measurable and viewable through an oscilloscope, which will show the optical waveform.

12 18. The shape of the optical signal is important since it is the signal that is used to
13 recapture the data at the host computer. There are specifications in the InfiniBand standards that
14 define the shape of the optical signal for InfiniBand communications. When designing cables and
15 InfiniBand communication systems, the designers change the drive signal to the laser to optimize the
16 shape of the optical signal.

17 19. In contrast, there are no specifications for the shape of the drive waveform output
18 from a laser driver to a laser. The attached VCSEL is actually part of the driver circuit and the shape
19 of the drive signal will vary from VCSEL manufacturer to VCSEL manufacturer and even VCSEL
20 to VCSEL because individual VCSELs, even VCSELs coming from the same manufacturer, have
21 unique electrical characteristics, the drive waveform will be different depending on the particular
22 electrical characteristics of the particular VCSEL that is connected to a given VCSEL driver.
23 Because the laser is part of the driver circuit you cannot determine what the drive waveform will be
24 when a laser is attached without knowing the precise laser being included in the circuit. Further, the
25 VCSELs are variable impedance devices and their performance will change depending upon the
26 current that is being output to the laser/VCSEL. So the drive waveform will not only change as
27 between VCSELs but also during operation as the driver modulates the drive signal in accordance
28 with the data being transmitted.

1 20. As such, since the shape of the drive waveform is a required limitation of the claims
2 of the 456 patent, it is not possible to determine whether a driver itself infringes without, among
3 other things, knowing the precise VCSEL that is being driven. As a group of company that makes
4 and sells fiber optic products that use VCSELs and VCSEL drivers, the Avago Defendants should
5 have known this as part of its pre-filing investigation.

6 21. IPtronics enjoys a unique position in the market for optoelectronic products, including
7 optical transceivers and AOCs. In both of these types of devices, IPtronics' customers pair a driver
8 with a VCSEL. Together these two components convert an electrical digital signal into an optical
9 signal carrying the same digital information as the electrical signal. There are a number of variables
10 that the customer can adjust to obtain what the customer regards as optimal optical performance of
11 the VCSEL. These variables include the magnitude of a bias current and the magnitude of a
12 modulation current for the VCSEL. In the IPtronics accused drivers there is also another variable,
13 pre-emphasis, that a customer can also adjust. Thus, IPtronics' customers buy drivers from IPtronics,
14 connect them to a VCSEL, and easily set these variables (through a graphic user interface) to obtain
15 optimal performance. Few companies sell laser drivers by themselves, and IPtronics sits atop of the
16 market, as the primary producer and seller of drivers that offer the highest quality, allow users to
17 optimize performance of their VCSELs, and are at the most competitive price point. The diverse and
18 unique characteristics of the VCSELs manufactured or used by IPtronics' many customers are but
19 one example of the versatility and benefits offered by IPtronics' drivers.

20 22. The complaint filed by the Avago Defendants with the ITC, which among other
21 things accused IPtronics drivers of infringing the '456 patent, is informative as to the facts and
22 analysis that the Avago Defendants had at that time. The reason for this is based on the ITC
23 pleading requirements and the course of the investigation itself. The statutes permitting ITC
24 investigations also require that complaints filed in the ITC include specific allegations supporting
25 patent infringement claims, including infringement claim charts. 19 C.F.R. §210.12(a)(9)(viii).
26 Accordingly, the Avago Defendants disclosed the bases for their infringement claims that they had at
27 the time in their complaint and exhibits thereto, including: an infringement claim chart comparing
28

1 the '456 patent to the accused IPtronics and MTI products; a declaration from its expert witness, Dr.
2 Dennis Deppe; and IPtronics datasheets/product briefs and reference designs.

3 23. The Avago Defendants' infringement claim chart alleged that the accused IPtronics
4 and MTI products satisfied the claim limitations requiring "a negative peak portion" and "at least
5 one parameter for affecting the negative peak portion." The claim charts relied solely on the
6 Declaration of Dennis G. Deppe, an IPtronics product brief, and an IPtronics reference design
7 document (filed with the complaint).

8 24. In his declaration, Dr. Deppe stated that he believed the accused IPtronics products
9 infringed the '456 patent based upon his review of documentation published by IPtronics about its
10 VCSEL driver products. Dr. Deppe relied exclusively upon his review of IPtronics product briefs
11 for the IPVD12G011 and IPVD3x4 VCSEL drivers and an IPtronics reference design for the
12 IPVD12G011 product in forming his opinions. Furthermore, he had failed to conduct any actual
13 testing of the IPtronics drivers attached to even a single VCSEL.

14 25. In particular, Dr. Deppe declared that two optical eye-diagrams obtained from an
15 IPtronics reference design document showed that the "negative peak portion" and "parameter for
16 affecting the negative peak portion" limitations were present in the accused IPtronics products.
17 Specifically, Dr. Deppe stated that "the drive waveform has a negative peak portion as reflected in
18 the data of [the two optical eye-diagrams]" and "pre-emphasis affects the negative peak portion of
19 the drive waveform."

20 26. Dr. Deppe's testimony and the two IPtronics technical documents represented the
21 entirety of the Avago Defendants' basis for asserting that the critical limitations "negative peak
22 portion" and "parameter for affecting the negative peak portion" were present in the accused
23 IPtronics and MTI products.

24 27. Investigation No. 337-TA-860 ("the ITC Investigation"), which the Commission
25 instituted on October 25, 2012, quickly demonstrated that the Avago Defendants' reliance on
26 IPtronics product datasheets and optical eye diagrams to support their '456 infringement allegations
27 was grossly inadequate and objectively baseless—a fact they should have known if they had done a
28 reasonable pre-filing investigation.

1 28. On March 19, 2013, Dr. Deppe was deposed in the ITC Investigation on the
2 infringement opinions stated in his declaration. In response to questions asking whether he could
3 identify a negative peak portion in the two IPtronics VCSEL driver optical eye-diagrams cited in his
4 declaration, Dr. Deppe was unable to point out any negative peak portion using the optical eye
5 diagrams despite his prior declaration to the contrary. Dr. Deppe admitted that optical eye diagrams
6 *were not sufficient* to demonstrate the presence of a negative peak portion in the drive waveform of a
7 VCSEL driver. In fact, he agreed that optical eye diagrams, the primary evidence supporting the
8 Avago Defendants' infringement claims, could not show the required negative peak portion in the
9 drive waveform.

10 29. Dr. Deppe's testimony confirms that technical documents and optical eye diagrams
11 alone are wholly insufficient for determining whether the limitations are met, and that to determine
12 infringement additional simulations and testing were required, a fact that the Avago Defendants or
13 any reasonable litigant would have known had they done a reasonable pre-filing investigation. On
14 information and belief, despite acknowledging the necessity of simulations of both the driver and the
15 VCSEL using accurate models of both or reliable tests that negate the impact of the test, and the
16 fallacy of purporting to rely only on optical eye diagrams or technical publications, the Avago
17 Defendants never performed any simulation or test on either IPtronics VCSEL drivers or the Avago
18 Defendants' own products before alleging in its ITC Complaint that the claim elements of the '456
19 patent were present in those products. This objective defect was present at the time the Avago
20 Defendants asked the ITC to initiate an investigation against IPtronics on the '456 patent and was
21 never remedied during the course of the ITC Investigation.

22 30. During the ITC Investigation, the Avago Defendants sought to add new evidence
23 supporting their already debunked infringement claims of the '456 patent. The Avago Defendants
24 retained a second technical witness, Frederick Miller, who had not been asked by the Avago
25 Defendants prior to the filing of the ITC Complaint to perform any testing or investigation to
26 determine whether or not the IPtronics drivers infringed the '456 patent.

27 31. Mr. Miller developed and conducted a series of physical tests on a small number of
28 the accused IPtronics products using one of the Avago Defendants' Evaluation Boards and a Probe

1 Station, which probe was used to connect the accused VCSEL drivers to VCSELs and thus generate
2 a drive waveform. Mr. Miller concluded that his testing results showed that the accused products
3 exhibited the required negative peak portion and thus infringed the asserted '456 patent claims. As
4 discussed below, Mr. Miller's testing was of dubious value. Even to the extent it informed the
5 Avago Defendants' belief regarding IPtronics' infringement of the '456 patent, this testing was done
6 only *after* the commencement of the ITC investigation. Although nothing prevented the Avago
7 Defendants from performing this testing prior to the filing of the ITC Complaint, they failed to do
8 so.

9 32. IPtronics' expert witness in the ITC Investigation, Dr. Michael Lebby, testified that
10 the results of the Avago Defendants' testing of certain of the accused products are insufficient to
11 establish that the drive waveform output by the IPtronics VCSEL drivers includes a negative peak
12 portion because of certain fundamental problems because of, among other reasons, issues with
13 accuracy, reliability, and flaws in methodology.

14 33. IPtronics' expert witness was not the only one who found that the Avago Defendants
15 lacked evidence to support a claim of infringement, much less win such a claim. The Commission's
16 Investigative Staff of the Office of Unfair Import Investigations ("Staff"), an independent party in
17 the ITC Investigation, also recommended to the ALJ in its Pre-Hearing Statement that the Staff did
18 not expect that the Avago Defendants would be able to present sufficient evidence to show
19 infringement of the '456 patent. In its Post-Hearing Statement, the Staff also concluded that based
20 on the record evidence, the Avago Defendants had failed to establish the presence of a negative peak
21 portion in the output waveforms of the accused IPtronics drivers.

22 34. With respect to the "parameter for affecting" limitation, the Staff further concluded
23 that based on the IPtronics technical publications and other evidence of record, including the
24 testimony of IPtronics employees, the Avago Defendants had not established that that the purpose of
25 the pre-emphasis parameter of the accused IPtronics VCSEL drivers was for affecting the negative
26 peak portion of the drive waveform. Accordingly, the Staff submitted that the evidence was not
27 sufficient to show that the accused products satisfy this limitation of each asserted claim. Any
28 person with industry experience, including in particular the Avago Defendants, should have known

1 this prior to filing a lawsuit. On information and belief, not only did the Avago Defendants fail to
2 perform a reasonable pre-filing investigation, they had no reason to believe that the evidence they
3 had or could develop would be likely to prove that IPtronics infringed the '456 patent.

4 35. During the hearing in the ITC Investigation, the presiding judge, Judge Essex
5 interrupted counsel's questions, pointedly asking Mr. Miller to confirm that his testing of the
6 accused IPtronics drivers to determine the presence of a negative peak portion in the drive waveform
7 was unreliable. Indeed, the Judge Essex ultimately found that Mr. Miller's tests were "unreliable
8 and entitled to no weight." (ID at 99). Thus, even the testing that the Avago Defendants developed
9 during the ITC Investigation was entitled to no weight. On information and belief, anyone
10 knowledgeable in the technology -- and particularly a manufacturer in this industry such as the
11 Avago Defendants -- would have known that their pre-filing evidence, the optical eye forms, could
12 not support an infringement contention. And their emergency "save the lawsuit" expert's testing was
13 objectively unreliable and could not support an infringement case.

14 36. Further, Mr. Miller himself admitted that the figures in the accused IPtronics product
15 datasheets are actually just "cartoons" and do not "accurately depict a waveform." Thus, the Avago
16 Defendants' own expert witness agreed that infringement could not be determined based on the
17 materials on which the Avago Defendants claimed to be relying.

18 37. The Commission's opinion affirming the ALJ's finding of no infringement of the
19 '456 patent is further confirmation of the objective baselessness of the Avago Defendants' claims (1)
20 when made before filing the Avago Defendants' ITC complaint, and (2) when presented at the
21 hearing in the ITC Investigation.

22 38. On information and belief, no reasonable litigant in the ITC Investigation could have
23 expected success in proving the presence of a negative peak portion in an actual drive waveform
24 based on conceptual, cartoon depictions of waveforms in IPtronics datasheets or on oscilloscope
25 readings of optical waveforms which are fundamentally different from drive waveforms. No
26 reasonable litigant could have expected success in proving that the pre-emphasis parameter was for
27 the purpose of digitally affecting the negative peak portion of the drive waveform parameter when
28 the IPtronics datasheets on which the Avago Defendants relied in their pre-suit investigation

1 explicitly explained that the purpose of the parameter is to reduce transition time and thus improve
2 the bit error rate and performance.

3 39. On information and belief, the Avago Defendants' '456 patent claims in the ITC
4 Investigation were objectively baseless when made, and the Avago Defendants continued—and
5 continue—to pursue them despite multiple objective indicia of fundamental deficiencies in those
6 claims.

7 **The Avago Defendants' Anticompetitive Statements**

8 40. On information and belief, the Avago Defendants pursued litigation in the ITC
9 Investigation with the intent to harm competition and competitors—specifically, Plaintiffs—without
10 concern for the outcome of the litigation or with any realistic expectation of success on the merits of
11 the '456 infringement claim.

12 41. In fact, on information and belief, the Avago Defendants admitted to this bad faith
13 abuse of patent infringement litigation in multiple meetings and conversations with employees of
14 Mellanox Technologies, Ltd. and Mellanox Technologies, Inc. (collectively, "Mellanox"), which
15 were also respondents sued in the ITC Investigation on the same '456 patent.

16 42. In a business meeting with Mellanox representatives on or about January 11, 2013, in
17 Palo Alto, California, representatives of the Avago Defendants explained what they called,

18 [REDACTED]
19 [REDACTED]
20 [REDACTED]
21 [REDACTED]
22 [REDACTED].

23 43. Further, the Avago Defendants attempted to use settlement negotiations as cover for
24 anticompetitive statements and conduct. On information and belief, it is the Avago Defendants'
25 regular practice to attempt to shield blatantly anticompetitive conduct behind traditionally
26 confidential settlement discussions. For instance, representatives of the Avago Defendants met with
27 Mellanox employees on or around October 28, 2013. In that meeting, [REDACTED]
28 [REDACTED]

1 [REDACTED]
2 [REDACTED]
3 44. Despite their specialized technical knowledge and significant resources, Avago was
4 losing the ITC Investigation, as one would expect. Of course, winning the ITC Investigation was
5 only the Avago Defendants' secondary goal. The primary goal, on information and belief, was to
6 abuse the process to harm competition. On information and belief, the Avago Defendants were
7 determined to prolong the litigation, no matter how expensive or how futile, as long as it depleted
8 IPtronics' resources. Their behavior was consistent with a litigant more concerned with having and
9 prolonging the case than winning the case.

10 45. Not only do the Avago Defendants' own statements and actions demonstrate their bad
11 faith in suing IPtronics, but these statements and actions are consistent with the Avago Defendants'
12 market incentives.

13 46. By subjecting IPtronics to costly, frivolous patent infringement litigation and
14 damaging their name in the relevant market, the Avago Defendants attempted to make it untenable
15 for IPtronics to continue to produce stand-alone drivers. Without IPtronics producing stand-alone
16 drivers, on information and belief, the Avago Defendants knew that they would be the only
17 significant producer of drivers in the Active Optical Cables and Transceivers Market. Simply put, if
18 the Avago Defendants could drive IPtronics, a component maker, out of business, the market would
19 be forced to buy the larger product from the Avago Defendants.

20 47. By squeezing IPtronics from the market, the Avago Defendants would be a sole
21 monopolist of the Active Optical Cables and Transceivers Market and could charge monopoly prices
22 for its products.

23 **The Avago Defendants' Pattern Of Anticompetitive Litigation**

24 48. The Avago Defendants' baseless litigation against IPtronics is consistent with their
25 pattern and practice of filing baseless lawsuits with the purpose of injuring and harassing its
26 competitors.

27 49. On information and belief, the Avago Defendants have asserted patent infringement
28 or actually litigated against nearly every one of the entities with which they have not otherwise

1 collaborated. The Avago Defendants' litigation history makes clear that the Avago Defendants are
2 using litigation and the threat of litigation as anticompetitive tools pursuant to its policy of instituting
3 litigation without regard to the merits for the purpose of injuring and preventing competition.

4 50. On February 22, 2006, the Avago Defendants sued Finisar Corporation ("Finisar")
5 alleging infringement of patents in Finisar's short wavelength optoelectronic transceivers. The
6 Avago Defendants voluntarily dismissed its claims within weeks.

7 51. On December 1, 2008, the Avago Defendants sued Emcore Corporation ("Emcore")
8 alleging infringement of patents in Emcore's optoelectronic products and components relating to
9 VCSELs. After years of Avago's imposing litigation costs on Emcore, the parties stipulated to
10 dismissal in May of 2012.

11 52. On March 15, 2010, the Avago Defendants sued STMicroelectronics Inc.
12 ("STMicroelectronics") alleging infringement of patents in STMicroelectronics' optical navigation
13 sensors. STMicroelectronics subsequently brought suit against the Avago Defendants, alleging
14 antitrust violations by the Avago Defendants. The Avago Defendants case was dismissed by
15 stipulated order in October of 2011.

16 53. On November 5, 2010, STMicroelectronics sued the Avago Defendants, alleging that
17 the Avago Defendants had engaged in sham litigation in violation of the Sherman Act.
18 STMicroelectronics collected lawsuits and threatened lawsuits through which the Avago Defendants
19 had allegedly abused the litigation process as a means to injure and harass its competitors.

20 54. On January 21, 2011, the Avago Defendants sued Cypress Semiconductor
21 Corporation ("Cypress") alleging infringement of patents in Cypress's optical navigation sensors.
22 The case was dismissed by stipulation with prejudice in December of that year.

23 55. On September 24, 2012, the Avago Defendants instituted the above-discussed ITC
24 Investigation against IPtronics.

25 56. On information and belief, these suits are representative of the Avago Defendants'
26 policy of engaging in vexatious litigation with the purpose of injuring and preventing competition.
27
28

The Relevant Market

57. The relevant product market in which to measure the effects of the Avago Defendants' anticompetitive conduct is the market for 40Gb/s or higher band rate Quad (4-channel) Small Form-factor Pluggable ("QSFP") short-reach InfiniBand Active Optical Cables and Transceivers ("AOC" market). In the alternative, it is the market for the QSFP 56Gb/s short-reach InfiniBand FDR AOC segment of that market ("InfiniBand" market).

58. The relevant geographic market in which to measure the effects of the Avago Defendants' anticompetitive conduct is worldwide, or in the alternative, in the United States. The market shares herein are intended to reflect the worldwide market. To the extent that there is a separate United States market, the Avago Defendants' market share and market power would be higher than that possessed in the broader worldwide market due to their claimed patent portfolio and their greater ability to access, or threaten to access, the courts as a competitive tool.

59. Notably, while the Avago Defendants' efforts to foreclose and exclude competitors have been successful in the broader worldwide market, their efforts have been even more successful in excluding competitors from the United States.

60. Except for intellectual property laws, there is no reason that AOC suppliers cannot sell their products, directly or indirectly, in international commerce. AOCs are physically small and easily transported around the world.

61. The AOC market—and the InfiniBand market specifically—have been recognized as an accepted, defined market within the industry.¹

62. Substitutes for AOCs are not readily available. Consumers of AOCs, in finance, healthcare, education, energy, supercomputing, telecommunications, and defense, who work in extremely important and sensitive applications, need the security and speed that only AOCs—and Infiniband AOCs particularly—provide. As market analysts have observed: "More and more

¹ http://www.lightcounting.com/News_062413.cfm.

1 protocols are moving to higher line rates where copper links start to have ‘issues’ with reach and
2 EMI and where AOCs offer strong benefits of high data rate, long reach and low price.”²

3 63. Substitutes for InfiniBand AOCs are not readily available. InfiniBand products allow
4 for extreme computing with the fastest, most efficient and scalable inter-connect infrastructure
5 available. This allows users to drastically reduce latency and increase performance due to faster
6 response time, greater capacity and power savings.

7 64. Upon information and belief, the Avago Defendants have realized their inability to
8 keep pace with—or substitute other products for—the InfiniBand market, and have invested in
9 “lower-cost” but lower quality solutions in the interim. Neither the Avago Defendants nor any other
10 market participant is currently capable of replacing IPtronics’ contributions to the AOC market by
11 producing commercial quantities functioning at the same level as those produced by purchasers of
12 IPtronics laser drivers.

13 65. Consumers notice a gulf of difference between 10Gb/s per channel AOCs of the sort
14 the Avago Defendants manufacture and the 14Gb/s per channel InfiniBand AOCs into which
15 IPtronics laser drivers are often incorporated. Infiniband products offer unparalleled transfer rates,
16 energy efficiency, and density, and thus are essential to growth of a high performance network
17 connectivity infrastructure in the U.S. Losing up to 4 Gb/s, per channel, in internal interconnect data
18 rates would result in tremendous disruption to businesses’ operations. Indeed, the rapid growth of
19 the 14Gb/s per channel InfiniBand segment of the AOC market testifies to that segment’s superiority
20 over lesser 10Gb/s per channel AOCs.

21 66. Even if other producers were to match the quality of the AOCs which rely almost
22 exclusively on IPtronics drivers—an event that, upon information and belief, could take two or more
23 years—the cost to consumers of switching would be substantial. Upon information and belief,
24 merely replacing AOCs for some businesses could require retesting and re-certifying their overall
25 systems, which could result in months of lost productivity and upwards of \$100,000 to test and
26 recertify their overall systems.

27
28 ² *Id.*

67. The Avago Defendants cannot match the quality of AOCs and InfiniBand AOCs produced by the purchasers of IPtronics laser drivers. On information and belief, no other manufacturer creates stand-alone laser drivers of comparable speed, reliability, and performance for AOCs. Without IPtronics in the market to produce those laser drivers, the Avago Defendants' lower-quality products will be a consumer's only option.

68. Barriers to entry to the market are high and have become increasingly difficult as a result of the Avago Defendants' anticompetitive conduct. The most likely entrants into the market are those manufacturers who currently purchase IPtronics' laser drivers to create and sell their own AOCs. On information and belief, it would take such a market player two or more years—during which the Avago Defendants could solidify their monopoly power—to implement or augment production of their own stand-alone drivers, and thus their own AOCs, to a competitive level.

69. Technological barriers (the development of a manufacturing capacity for stand-alone laser drivers), and financial barriers (the initial investment necessary to produce stand-alone drivers) risk keeping any potential entrant out of the market.

70. The barrier of gaining customer contracts, too, would be especially high as to a potential entrant who had to suddenly cease selling to a consumer as a result of IPtronics' exit from the market. Finally, even if any such potential entrant did consider entering the market, they would face the specter of sham litigation similar to that the Avago Defendants have instituted against IPtronics. The largest barrier to entry to any new market entrant is thus the Avago Defendants themselves.

COUNT I: Attempted Monopolization Under 15 U.S.C. §2)

(By IPtronics Against Each of the Avago Defendants)

71. Plaintiffs incorporate the allegations in paragraphs 1 through 69 above as if fully set forth herein.

72. The relevant product market is the market for 40Gb/s or higher band rate Active Optical Cables and Transceivers, or, in the alternative, the market for the 56Gb/s InfiniBand FDR AOCs. Products in this market are recognized as a separate and distinct product market, as demonstrated in paragraphs 56 through 69.

1 73. The relevant geographic market is the worldwide for the reasons explained in
2 paragraphs 56 through 69.

3 74. In the alternative, the relevant geographic market is the United States for the reasons
4 explained in paragraphs 56 through 69.

5 75. The Avago Defendants have improperly attempted to gain monopoly power in the
6 relevant product and geographic markets through their anticompetitive and exclusionary acts
7 described herein. These acts include the filing of the objectively baseless ITC Investigation against
8 IPtronics as described in paragraphs 16 through 69. These acts have enabled the Avago Defendants
9 to control prices and exclude competition from the relevant product and geographic market, to the
10 harm of competition and consumers.

11 76. As discussed above, the Avago Defendants' sham infringement lawsuit against
12 IPtronics was both objectively baseless and subjectively intended to harm competition, because the
13 Avago Defendants knew at the time of filing that they would not be able to prove infringement of the
14 '456 patent and that they thus had no chance of success on the merits, but filed suit regardless to
15 injure their competitor. During the course of the litigation, and despite spending more money and
16 time to hire additional expertise to "support" their contentions, the Avago Defendants had no
17 reasonable belief that their claims would be successful.

18 77. There is no legitimate procompetitive justification for the anticompetitive actions and
19 conduct which facilitated the Avago Defendants' attempted monopolization of the relevant market.
20 As explained above, the Avago Defendants' infringement claims are wholly without merit and were
21 conceived as an effort to hinder competition in the relevant market.

22 78. On information and belief, the Avago Defendants engaged in these anticompetitive
23 and exclusionary acts with the specific intent of obtaining dominant market position and monopoly
24 power in the relevant product and geographic markets. The Avago Defendants consistently
25 expressed that they did not ultimately care about the outcome of patent litigation; instead, they said
26 they wanted to squash their competitor through litigation and to exclude IPtronics from competition
27 with the Avago Defendants.
28

1 79. The unlawful activities alleged above create a dangerous probability of the Avago
2 Defendants achieving monopoly power in the relevant product and geographic markets, in violation
3 of the prohibition on attempted monopolization under Section 2 of the Sherman Act, 15 U.S.C. § 2.

4 80. As a direct and proximate result of the Avago Defendants' anticompetitive conduct
5 and improperly motivated pursuit of objectively and subjectively baseless litigation against IPtronics
6 in the ITC Investigation, IPtronics has suffered actual damages and expended unjustified costs,
7 including but not limited to the costs of its legal defense. In addition, the Avago Defendants' baseless
8 patent infringement allegations created uncertainty regarding IPtronics' intellectual property
9 rights and resulted in damages including lost prospective and actual business, lost profits, loss of
10 goodwill, a decreased ability to raise capital, and damage to its reputation of its products. MTD,
11 through its shareholders, has also suffered actual damages when it was purchased by Mellanox
12 Technologies, Ltd. at a price much lower than that which it would have received absent the Avago
13 Defendants' anticompetitive conduct.

14 81. Specifically, businesses around the world declined to do business with IPtronics after
15 the commencement of Avago's litigation, in part due to that litigation. On information and belief,
16 businesses in the United States, Europe, Japan and China factored the Avago Defendants' claims
17 into their decision either not to do business with IPtronics or to cease doing business with IPtronics
18 during the relevant timeframe.

19 82. Overall competition in the relevant product and geographic markets has been and will
20 continue to be harmed by the Avago Defendants' conduct, and consumers have been or will be
21 harmed, in the form of supracompetitive prices and other injuries, by the Avago Defendants' attempt
22 to drive their primary competitors—IPtronics— from the relevant market. In fact, without IPtronics
23 in the market to produce drivers, the Avago Defendants' lower-quality products will be a consumer's
24 only option.

25 83. The injury IPtronics has suffered as a result of the Avago Defendants' attempt to
26 monopolize and monopolization accordingly constitutes antitrust injury, and IPtronics is entitled to
27 recover treble damages for harm it has sustained as described herein and provable at trial (including
28 costs and attorneys' fees incurred in connection with the Avago Defendants' sham litigation).

DEMAND FOR JURY TRIAL

84. Plaintiffs hereby demand a jury trial of all issues in the above-captioned action which are triable to a jury.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs pray for relief against the Avago Defendants as follows:

(a) A judgment declaring that the Avago Defendants have violated § 2 of the Sherman Antitrust Act (15 U.S.C. § 2) and awarding damages to IPtronics (including any provable harm, interest, costs, and reasonable attorneys' fees) and that such damages be trebled and permanently enjoining the Avago Defendants, their officers, agents, directors, servants, employees, subsidiaries, and assigns, and all those acting under the authority of or in privity with any of them, from asserting or otherwise seeking to enforce the '456 patent against IPtronics;

(b) An order awarding IPtronics the costs incurred in the ITC Investigation; and

(c) Any such other and further relief for Plaintiffs as the Court deems just and proper.

Dated: December 29, 2014

Respectfully submitted,

ALSTON & BIRD LLP

/s/ Steven D. Hemminger

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