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NORTH STAR INNOVATIONS INC.

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12  
13 **UNITED STATES DISTRICT COURT**  
14 **CENTRAL DISTRICT OF CALIFORNIA**

15 NORTH STAR INNOVATIONS  
16 INC.,  
17 Plaintiff,  
18 vs.  
19 INTEGRATED DEVICE  
TECHNOLOGY, INC.,  
20 Defendant.

CASE NO. 8:16-cv-2055  
**COMPLAINT FOR PATENT  
INFRINGEMENT**  
JURY TRIAL DEMANDED

1 Plaintiff North Star Innovations Inc. ("Plaintiff" or "North Star"), by and  
2 through its attorneys, files this Complaint for Patent Infringement against  
3 Defendant Integrated Device Technology, Inc. ("IDT"), and alleges as follows:

4 **PARTIES**

5 1. Plaintiff North Star is a corporation organized and existing under the  
6 laws of the State of Delaware, with a principal place of business at 600 Anton  
7 Blvd., Costa Mesa, California 92626. Plaintiff is the owner of seminal patents in  
8 the fields of integrated circuits, semiconductor memory architecture, and  
9 semiconductor memory devices, including many patents that address static  
10 random access memory, or "SRAM." Plaintiff's portfolio includes patents that  
11 teach valuable innovations and improvements related to speed, power  
12 consumption, density, reliability, and cost. Plaintiff is actively engaged in  
13 licensing efforts with respect to such technologies.

14 2. Defendant IDT is a corporation organized and existing under the  
15 laws of the State of Delaware, with a principal place of business at 6024 Silver  
16 Creek Valley Road, San Jose, California 95138. Defendant may be served with  
17 process by serving it registered agent for service of process, CT Corporation  
18 System, 818 W. 7<sup>th</sup> Street, Suite 930, Los Angeles, CA 90017, or by personally  
19 serving its President and CEO, Gregory L. Waters, at IDT's principal place of  
20 business.

21 3. According to its website, IDT "develops system-level solutions that  
22 optimize its customers' applications. IDT's market-leading products in RF,  
23 timing, wireless power transfer, serial switching, interfaces and sensing solutions  
24 are among the company's broad array of complete mixed-signal solutions for the  
25 communications, computing, consumer, automotive and industrial segments.  
26 These products are used for development in areas such as 4G infrastructure,  
27 network communications, cloud datacenters and power management for  
28 computing and mobile devices."

1 4. According to that same website, IDT: employs “1,800 [individuals]  
2 worldwide,” generated revenue of \$697,000,000.00 in Fiscal Year 2016, and  
3 boasts core expertise in the areas of “[t]iming, high-speed mixed-signal design,  
4 serial interconnects, memory interfaces, power management, sensing, and radio  
5 frequency (RF).” IDT’s stock is traded on the Nasdaq exchange under the ticker  
6 symbol IDTI.

### 7 JURISDICTION AND VENUE

8 5. This action arises under the patent laws of the United States, 35  
9 U.S.C. § 1 *et seq.*, including §§ 271, 281, 282, 283, 284, 285, and 295. This  
10 Court has subject matter jurisdiction over this patent infringement action pursuant  
11 to 28 U.S.C. §§ 1331, and 1338(a).

12 6. This Court has personal jurisdiction over IDT. Upon information and  
13 belief, Defendant has regularly conducted and continues to conduct business in the  
14 U.S., in the State of California, and in this judicial district. On information and  
15 belief, Defendant has committed infringing activities in California and in this  
16 judicial district by: making, using, offering for sale, or selling in the U.S., and/or  
17 by importing into the U.S. products and systems that infringe the Patents-In-Suit  
18 (as defined below); by importing into the U.S. or by offering to sell, selling, or  
19 using within the U.S. products and systems made by a process patented in the  
20 U.S.; or by placing such infringing products and systems into the stream of  
21 commerce with the awareness, knowledge, and intent that they would be used,  
22 offered for sale, or sold by others in this judicial district and/or purchased by  
23 consumers in this judicial district. This Court’s exercise of personal jurisdiction  
24 over Defendant would comport with due process.

25 7. Venue is proper pursuant to 28 U.S.C. §§ 1391(b) and 1400(b).

### 26 THE PATENTS-IN-SUIT

27 8. On July 14, 1998, U.S. Patent No. 5,781,480 (“the ’480 Patent”) –  
28 entitled “Pipelined Dual Port Integrated Circuit Memory” – was lawfully and

1 properly issued by the USPTO, after a full and fair examination. The named  
2 inventors on the '480 Patent are Scott George Nogle, Alan S. Roth, and Shuang  
3 Li Ho. A true and correct copy of the '480 Patent is attached hereto as Exhibit A  
4 and incorporated by reference.

5 9. Generally speaking, the '480 Patent teaches, among other things, a  
6 novel circuit design for static random access memory ("SRAM") whereby  
7 substantially simultaneous requests for access are serviced sequentially within a  
8 single cycle of a clock signal. Because dual port functionality is obtained using a  
9 standard SRAM memory cell, the memory may be manufactured using relatively  
10 less integrated circuit surface area, and therefore at a lower cost.

11 10. On July 25, 2000, U.S. Patent No. 6,093,972 ("the '972 Patent") –  
12 entitled "Microelectronic Package Including a Polymer Encapsulated Die" – was  
13 lawfully and properly issued by the USPTO, after a full and fair examination. The  
14 named inventors on the '972 Patent are: Francis J. Carney and Donald H.  
15 Klosterman of Gilbert, Arizona; Phillip C. Celaya, Frank Tim Jones, and James  
16 Howard Knapp of Chandler, Arizona; Keith E. Nelson of Tempe, Arizona;  
17 George Amos Carson of Elk Grove Village, Illinois; Harry Fuerhaupter of  
18 Lombard, Illinois; and Cynthia M. Melton of Bolingbrook, Illinois. A true and  
19 correct copy of the '972 Patent is attached hereto as Exhibit B and incorporated  
20 by reference.

21 11. Generally speaking, the '972 Patent teaches, among other things, a  
22 microelectronic package in which the integrated circuit die is completely  
23 encapsulated within a molded polymeric material. The novel invention provides a  
24 package with enhanced reliability and reinforcement to the solder bump  
25 interconnections and also provides protection for the back side of the integrated  
26 circuit die using a single, less complex manufacturing process that, in certain  
27 embodiments, minimizes the footprint of the package.

1           12.     On October 15, 2002, U.S. Patent No. 6,465,743 (“the ’743 Patent”)  
2 – entitled “Multi-Strand Substrate for Ball-Grid Array Assemblies and Method” –  
3 was lawfully and properly issued by the USPTO, after a full and fair examination.  
4 The named inventor on the ’743 Patent is Norman Lee Owens. A true and correct  
5 copy of the ’743 Patent is attached hereto as Exhibit C and incorporated by  
6 reference.

7           13.     Generally speaking, the ’743 Patent teaches, among other things, a  
8 novel method for assembling ball-grid array (BGA) packages in an “N by M”  
9 array having multiple rows and multiple columns, where the method produces  
10 multiple substrates in a way that is cost effective and is conducive to large-scale  
11 automated assembly.

12           14.     The ’480 Patent, the ’972 Patent, and the ’743 Patent may be  
13 referred to individually as a “Patent-in-Suit” or collectively as the “Patents-in-  
14 Suit.”

15           15.     By way of assignment, Plaintiff is the owner of all right, title, and  
16 interest in and to the Patents-in-Suit, including the rights to prosecute this action  
17 and to collect and receive damages for all past, present, and future infringements.

18                   **COUNT ONE: INFRINGEMENT OF THE ’480 PATENT**

19           16.     Plaintiff incorporates the above allegations as if set forth here in  
20 full.

21           17.     The ’480 Patent is valid and enforceable. IDT does not have a  
22 license to practice the patented inventions of the ’480 Patent.

23           18.     On information and belief, IDT has infringed and is currently  
24 infringing at least Claim 1 of the ’480 Patent, which recites: “An integrated  
25 circuit memory, comprising:<sup>1</sup> a plurality of memory cells, each of the plurality of  
26

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27 <sup>1</sup> Plaintiff does not hereby suggest or concede that the preamble of this or any other asserted  
28 claim constitutes a substantive limitation. That issue is expressly reserved for the claim  
construction stage.

1 memory cells being coupled to a single word line and to a single bit line pair; an  
2 address decoder, coupled to the plurality of memory cells, for selecting a memory  
3 cell of the plurality of memory cells in response to receiving an address; a first  
4 address port, coupled to the address decoder, for providing a first address to the  
5 address decoder for accessing the plurality of memory cells; a second address  
6 port, coupled to the address decoder, for providing a second address to the  
7 address decoder for accessing the plurality of memory cells; a read data port,  
8 coupled to the plurality of memory cells, for reading data from the plurality of  
9 memory cells in response to either the first or the second address; a write data  
10 port, coupled to the plurality of memory cells, for writing data to the plurality of  
11 memory cells in response to either the first or the second address; and a control  
12 circuit, coupled to the address decoder, to the first and second address ports, and  
13 to the read and write data ports, the control circuit for controlling access to the  
14 plurality of memory cells, wherein substantially simultaneous requests for access  
15 to the plurality of memory cells are serviced sequentially within a single clock  
16 cycle of a clock signal of a data processor accessing the integrated circuit  
17 memory.”

18 19. More specifically, on information and belief and in violation of 35  
19 U.S.C. §271(a), IDT makes, uses, offers for sale, and/or sells in the U.S., or  
20 imports into the U.S., one or more products that meet each and every limitation  
21 recited in Claim 1 of the '480 Patent. For example, IDT imports, offers for sale,  
22 sells, and/or uses a 128Kx36 Synchronous Dual-Port SRAM, IDT Part No.  
23 IDT70V3599 (“IDT SRAM” or “Accused Product”), which infringes Claim 1 of  
24 the '480 Patent.

25 20. Stated another way, there is a one-to-one correspondence between  
26 (i) the patented apparatus of Claim 1 and (ii) the Accused Product offered for sale  
27 and sold by Defendant. The IDT SRAM infringes by virtue of having each and  
28 every component recited in Claim 1, and by virtue of the fact that those

1 components are arranged, connected, and assembled in the configuration recited  
2 by Claim 1.

3 21. On information and belief, IDT imports into the U.S., or makes,  
4 uses, offers for sale, or sells in the U.S., many other products with the same  
5 circuitry or substantially similar circuitry, including all products with the same  
6 SRAM architecture, that likewise infringe at least Claim 1 of the '743 Patent.  
7 Plaintiff expressly reserves the right to assert additional patents and additional  
8 claims and to identify additional infringing products and additional entities who  
9 operate in concert with Defendant in accordance with the Federal Rules of Civil  
10 Procedure, the Court's scheduling order, and the Court's local rules.

11 22. Plaintiff has been damaged by IDT's infringing conduct and will  
12 continue to be damaged unless IDT is enjoined from further infringement.  
13 Accordingly, upon finding for Plaintiff, the Court should award to Plaintiff  
14 damages adequate to compensate for the infringement, in an amount to be  
15 determined at trial, but in no event less than a reasonable royalty for the use made  
16 of the invention by the infringer, together with interest and costs as fixed by the  
17 Court. Further, upon judgment in favor of Plaintiff, the Court should permanently  
18 enjoin IDT from committing the infringing acts.

19 **COUNT TWO: INFRINGEMENT OF THE '972 PATENT**

20 23. Plaintiff incorporates the above allegations as if set forth here in full.

21 24. The '972 Patent is valid and enforceable. Defendant does not have a  
22 license to practice the patented inventions of the '972 Patent.

23 25. On information and belief, and in violation of 35 U.S.C. §271(a),  
24 Defendant infringes at least Claim 1 of the '972 Patent. For example, on  
25 information and belief, IDT imports into the U.S., or makes, uses, offers for sale,  
26 and/or sells in the U.S., products such as the IDT DDR4 Register, IDT Part No.  
27 4RCD0124KC0ATG ("DDR4 Register" or "Accused Product"), that meet each  
28 and every limitation in Claim 1 of the '972 Patent, which recites: "A

1 microelectronic package comprising: a carrier substrate that includes a die  
2 attachment face and carrier sides about the die attachment face, said die  
3 attachment face comprising a die attach region and a surrounding region about the  
4 die attach region; an integrated circuit die overlying the die attach region and  
5 spaced apart therefrom by a gap, said integrated circuit die including an active  
6 face facing the die attach region and a back face opposite the active face; a  
7 plurality of solder bump interconnections that extend across the gap and connect  
8 the integrated circuit die to the die attach region; and an encapsulant formed of a  
9 singular polymeric body overlying the back face and molded against the  
10 surrounding region so as to encapsulate the die therein, said body comprising  
11 sides coextensive with said carrier sides.”

12 26. Stated another way, there is a one-to-one correspondence between (i)  
13 the patented apparatus of Claim 1 and (ii) the Accused Product offered for sale  
14 and sold by Defendant. The DDR4 Register infringes by virtue of having each  
15 and every component recited in Claim 1, and by virtue of the fact that those  
16 components are arranged, connected, and assembled in the configuration recited  
17 by Claim 1.

18 27. On information and belief, numerous additional products offered for  
19 sale and/or sold by IDT in the U.S. infringe one or more claims of the '972  
20 Patent. Such offers for sale and sales violate 35 U.S.C. § 271(a). Plaintiff  
21 expressly reserves the right to assert additional patents and additional claims and  
22 to identify additional infringing products and additional entities who operate in  
23 concert with Defendant, in accordance with the Federal Rules of Civil Procedure,  
24 the Court's scheduling order and the Court's local rules.

25 28. Plaintiff has been damaged by Defendant's infringing conduct and  
26 will continue to be damaged unless Defendant is enjoined from further  
27 infringement. Accordingly, upon finding for Plaintiff, the Court should award to  
28 Plaintiff damages adequate to compensate for the infringement, in an amount to



1 be determined at trial, but in no event less than a reasonable royalty for the use  
2 made of the invention by the infringer, together with interest and costs as fixed by  
3 the Court. Further, upon judgment in favor of Plaintiff, the Court should  
4 permanently enjoin Defendant from committing the infringing acts.

5 **COUNT THREE: INFRINGEMENT OF THE '743 PATENT**

6 29. Plaintiff incorporates the above allegations as if set forth here in  
7 full.

8 30. The '743 Patent is valid and enforceable. IDT does not have a  
9 license to practice the patented inventions of the '743 Patent.

10 31. On information and belief, IDT has infringed and is currently  
11 infringing at least Claim 1 of the '743 Patent. More specifically, on information  
12 and belief, and in violation of 35 U.S.C. §271(g), IDT imports into the U.S., or  
13 offers to sell, sells, and/or uses in the U.S., one or more products, including the  
14 IDT SRAM, made by a process patented in the U.S, including the method recited  
15 in Claim 1 of the '743 Patent: "A method for assembling ball-grid array (BGA)  
16 packages, comprising the steps of: providing a plurality of BGA substrates  
17 arranged in an N by M array within a printed circuit board having a thickness,  
18 wherein N and M are greater than or equal to 2, each of the plurality of BGA  
19 substrates having a plurality of bond posts on one side and a plurality of contact  
20 pads on an opposite side; attaching a semiconductor die to each of the plurality of  
21 BGA substrates, the semiconductor die having a plurality of bond pads;  
22 encapsulating the semiconductor die with an encapsulant; curing the encapsulant;  
23 attaching conductive solder balls to each of the plurality of contact pads; and  
24 dividing the N by M array into separate BGA packages, and wherein each of the  
25 separate BGA packages is substantially planar."

26 32. For example, IDT imports into the U.S., or offers for sale, sells,  
27 and/or uses in the U.S., the IDT SRAM. On information and belief, that product  
28

1 is assembled in accordance with the method set forth in Claim 1 of the '743  
2 Patent. As such, IDT's actions constitute patent infringement.

3 33. Stated another way, there is a one-to-one correspondence between  
4 (i) each of the method steps recited in Claim 1 and (ii) the process used to make  
5 the Accused Product.

6 34. On information and belief, many other IDT products assembled in a  
7 BGA package are likewise assembled using the patented methods of the '743  
8 Patent. IDT's importation into the U.S., or its offer for sale, sale, and/or use of  
9 such products in the U.S., constitutes infringement of the '743 Patent. Plaintiff  
10 expressly reserves the right to assert additional patents and additional claims and  
11 to identify additional infringing products and additional entities who operate in  
12 concert with Defendant, in accordance with the Federal Rules of Civil Procedure,  
13 the Court's scheduling order, and the Court's local rules.

14 35. Plaintiff has been damaged by IDT's infringing conduct and will  
15 continue to be damaged unless IDT is enjoined from further infringement.  
16 Accordingly, upon finding for Plaintiff, the Court should award to Plaintiff  
17 damages adequate to compensate for the infringement, in an amount to be  
18 determined at trial, but in no event less than a reasonable royalty for the use made  
19 of the invention by the infringer, together with interest and costs as fixed by the  
20 Court. Further, upon judgment in favor of Plaintiff, the Court should permanently  
21 enjoin IDT from committing the infringing acts.

22 **DEMAND FOR JURY TRIAL**

23 36. Plaintiff hereby demands a trial by jury on all issues.

24 **PRAYER FOR RELIEF**

25 WHEREFORE, Plaintiff respectfully prays for entry of judgment as  
26 follows:

27 1. That Defendant has directly infringed one or more claims of the  
28 Patents-In-Suit;

