

CANADA

(Class Action Division)
SUPERIOR COURT

PROVINCE OF QUEBEC
DISTRICT OF MONTREAL

G [REDACTED] H [REDACTED],

Plaintiff

N^o : 500-06-000923-181

-vs-

MICRON TECHNOLOGY, INC.,

-and-

MICRON SEMICONDUCTOR PRODUCTS,
INC.,

-and-

SAMSUNG ELECTRONICS CO LTD.,

-and-

SAMSUNG SEMICONDUCTOR, INC.,

-and-

SAMSUNG ELECTRONICS CANADA INC.,

-and-

SK HYNIX, INC. (formerly known as HYNIX
SEMICONDUCTOR, INC.),

-and-

SK HYNIX AMERICA, INC. (formerly known
as HYNIX SEMICONDUCTOR AMERICA,
INC.)

Defendants

**AMENDED APPLICATION FOR AUTHORIZATION TO INSTITUTE A CLASS ACTION
(AS AUTHORIZED BY THE MARCH 15, 2020 JUDGMENT)
(Art. 574 C.C.P. and following)**

TO ONE OF THE HONORABLE JUSTICE DONALD BISSON (...) OF THE SUPERIOR COURT OF QUEBEC, SITTING IN AND FOR THE DISTRICT OF MONTREAL, THE PLAINTIFF STATES THE FOLLOWING:

I. INTRODUCTION

1. Plaintiff wishes to institute a class action on behalf of the following group, of which Plaintiff is a member, namely:

All persons or entities in Canada (subsidiarily in Quebec) who, between at least June 1, 2016 and February 1, 2018, acquired dynamic random-access memory (“**DRAM**”) directly from one of the Defendants (the “**Direct Purchasers**”) or who acquired DRAM and/or products containing DRAM either from a Direct Purchaser or from another indirect purchaser at a different level in the distribution chain (the “**Indirect Purchasers**”), or any other Group(s) or Sub-Group(s) to be determined by the Court;

(hereinafter, both Quebec resident and non-Quebec resident Class Members are collectively referred to as “**Class Member(s)**”, “**Group Member(s)**”, the “**Group**”, the “**Class**”, “**Consumers**” or “**Customers**”);

2. Class Members include direct and indirect purchasers of DRAM who suffered losses by assuming, in whole or in part, the inflated portion of the price of DRAM sold in Canada and/or Quebec. “**Direct Purchasers**” are therefore those persons or entities who acquired DRAM directly from one of the Defendants and “**Indirect Purchasers**” are those persons or entities who acquired DRAM or products containing DRAM from either a Direct Purchaser or from another person, himself or herself also an Indirect Purchaser, at a different level in one of the multiple chains of distribution of the product *en route* to the eventual end-user;
3. The “**Class Period**” is presently defined as being the period between at least June 1, 2016 and February 1, 2018, Plaintiff reserving his right to amend these proceedings in this regard;
4. On April 27, 2018, a similar class action complaint was filed before the United States District Court in the Northern District of California, the whole as more fully appears from

the United States District Court, Northern District of California Class Action Complaint in the case of the Jones et al v. Micron Technology Inc. et al, case number 4:18-cv-2518-JSW-KAW, communicated herewith (...) as **Exhibit R-1** and the consolidated amended complaint in said file dated October 28, 2019 is communicated herewith as **Exhibit R-1A** (hereinafter the “**California Action**”);

5. The California Action is itself the result of an extensive independent investigation conducted by the class counsels in the California Action and/or their consultants, the whole as more fully appears from the California Action and the press release dated April 27, 2018 that was issued following the issuance of the California Action, communicated herewith as though recited at length herein, as **Exhibit R-2** (hereinafter the “**HB Press Release**”);

- 5.1. On June 26, 2018, another class action complaint was filed before the United States District Court in the Northern District of California, the whole as more fully appears from the United States District Court, Northern District of California Consolidated Amended Class Action Complaint in the case of *John Treanor et al. v. Micron Technology Inc. et al.*, case number 4:18-cv-03805-JSW-KAW, dated January 11, 2021, communicated herewith as **Exhibit R-5**.

II. DEFENDANTS

A. Description of Defendants

6. Defendant Micron Technology, Inc. (hereinafter “**Micron Technology**”) is a Delaware corporation. During the Class Period, Micron Technology sold and distributed DRAM;
7. Defendant Micron Semiconductor Products, Inc. (hereinafter “**Micron Semiconductor**”) is an Idaho corporation. Micron Semiconductor is a wholly owned and controlled subsidiary of Micron Technology. During the Class Period, Micron Semiconductor sold and distributed DRAM, including sales of DRAM through its retailing arm, Crucial Technology, Inc. (hereinafter “**Crucial**”), and Crucial’s website, Crucial.com;

8. Defendants Micron Technology and Micron Semiconductor, and Crucial are collectively referred to herein as “**Micron**”;
9. Defendant Samsung Electronics Canada Inc. (hereinafter “**Samsung Canada**”) is a Canadian corporation wholly owned and controlled subsidiary of Samsung Electronics Co Ltd. (hereinafter “**SEC**”), which is itself headquartered in South Korea, the whole as more fully appears from the *Registre des Entreprises* (CIDREQ) report on Samsung Canada, communicated herewith, as **Exhibit R-3**. During the Class Period, SEC and Samsung Canada manufactured and/or sold and/or distributed DRAM and/or products containing DRAM;
10. Defendant Samsung Semiconductor, Inc. (hereinafter “**SSI**”) is a California corporation. SSI is a wholly owned and controlled subsidiary of SEC. During the Class Period, SSI sold and distributed DRAM;
11. Defendants Samsung Canada, SEC and SSI are collectively referred to herein as “**Samsung**”;
12. Defendant SK Hynix, Inc. (formerly known as Hynix Semiconductor, Inc.) (hereinafter “**SK Hynix Korea**”) is a Korean corporation. During the Class Period, SK Hynix Korea sold and distributed DRAM;
13. Defendant SK Hynix America, Inc. (formerly known as Hynix Semiconductor America, Inc.) (hereinafter “**SK Hynix America**”) is a California corporation. SK Hynix America is a wholly owned and controlled subsidiary of SK Hynix Korea. During the Class Period, SK Hynix America sold and distributed DRAM;
14. Defendant SK Hynix and SK Hynix America are collectively referred to herein as “**SK Hynix**”;
15. Defendants’ officers, directors, agents, employees, or representatives engaged in the conduct alleged in these proceedings in the usual management, direction, or control of Defendants’ business or affairs;

16. Defendants are also liable for acts done in furtherance of the alleged conspiracy by companies they acquired through mergers and acquisitions;

B. Defendants' Agents and Non-Party Co-Conspirators

17. When Plaintiff herein (or as referred to in his exhibits) refers to a corporate family or companies by a single name in this application, he is alleging that one or more employees or agents of entities within that corporate family engaged in conspiratorial acts on behalf of every company in that family. The individual participants in the conspiratorial acts did not always know the corporate affiliation of their counterparts, nor did they distinguish between the entities within a corporate family. The individual participants entered into agreements on behalf of their respective corporate families. As a result, those agents represented the entire corporate family with respect to such conduct, and the corporate family was party to the agreements that those agents reached;
18. Each of the Defendants acted as the agent of, co-conspirator with, or joint venture partner of the other Defendants and co-conspirators with respect to the acts, violations and common course of conduct alleged in these proceedings. The Defendants are therefore solidarily liable herein. Each Defendant or co-conspirator that is a subsidiary of a foreign parent acted (...) in relation to the DRAM and/or DRAM products made by its parent company;

III. DESCRIPTION OF DRAM

A. What is DRAM?

19. Dynamic random-access memory ("**DRAM**") is one of the most common forms of semiconductor memory. DRAM is used to store bits of data in capacitors, which are situated within integrated circuits. DRAM is widely used in digital electronics, such as in mobile phones, PCs and servers, tablets, TVs, cameras, and also in industrial applications, such as in automotive, military and aviation devices, inter alia. Examples of DRAM are the following:



20. “RAM” or “Random Access Memory” is the memory or information storage in a computer that is used to store running programs and data for the programs. Data in the RAM can be read and written quickly in any order. Normally, the RAM is in the form of computer chips, such as DRAM. The “D” in DRAM stands for “dynamic,” meaning that it is a dynamic form of RAM that must have its storage cells refreshed or given a new electronic charge every few milliseconds, or else data contained in the DRAM will be lost;
21. DRAM is a stand-alone product. In other words, it must be inserted into a device, such as a laptop or a mobile phone, to serve any function. Because DRAM has no independent utility, the value of and thus the demand for DRAM is driven by the demand for products that need dynamic memory;

B. How is DRAM manufactured?

22. Defendants manufacture DRAM in fabrication plants (commonly called “**fabs**”) in Korea and China;
23. DRAM is made from silicon wafers. To make DRAM, silicon wafers are cut into individual chips called “dice.” The dice are then printed with electronics to be considered complete. Capacity for DRAM is often discussed in terms of new “wafer starts”;
24. DRAM chips are classified into types based on the number of data transfers a chip can process per cycle. DRAM types are most commonly denoted by the term Double Data Rate (“DDR”) and are suffixed by numbers 2-6. For example, DRAM types include DDR3 and DDR4;

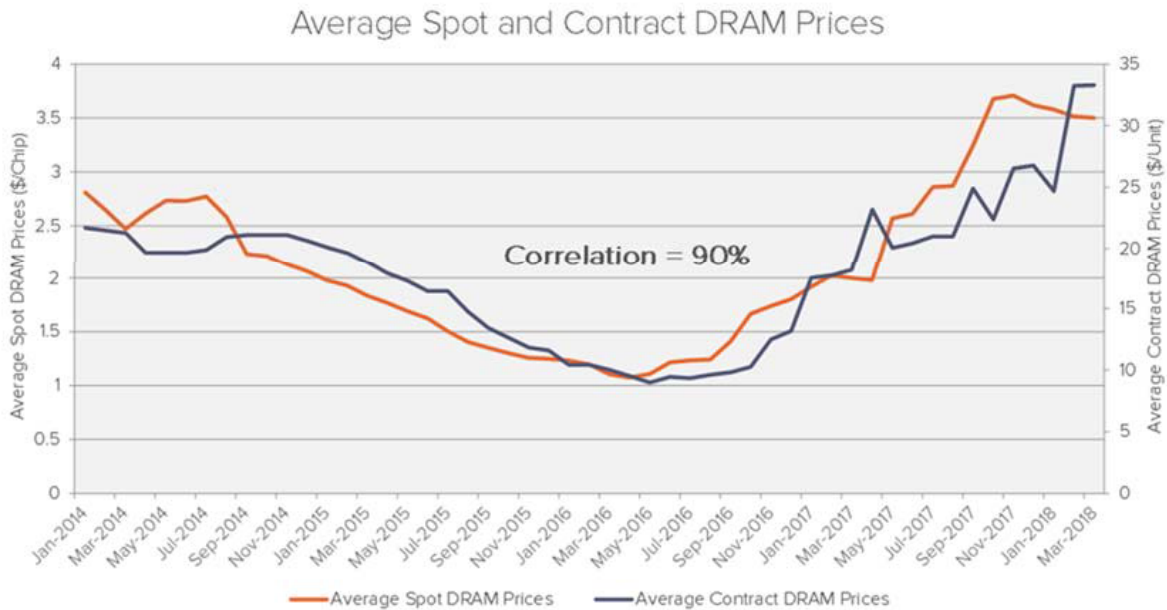
25. DRAM chips are also sometimes assembled by Defendants (or their contract agents) into DRAM modules, in order to be used in certain DRAM-containing devices. DRAM modules are a packaging option necessitated by, and developed for, the computer segment of the electronics market. A DRAM module is made from DRAM chips, a printed circuit board (“PCB”), and a bonding agent to attach the chips to the PCB. The vast majority of the cost of a DRAM module is the cost of chips. The close relationship between modules and chips is reflected by the price parity between them. At any given time, the price of modules is only slightly above the aggregate price of the loose chips mounted on the PCB;
26. DRAM is also classified into categories based on its end-use. For example, PC DRAM is used in PC related products such as in desktop and notebook products. Mobile DRAM is used in mobile devices, such as phones, smartphones, and tablets. Server DRAM is used in server applications, such as workstations and servers. There are other classifications that can be used in consumer devices such as TV, navigation, and digital/video camera devices, among other products;

C. How is DRAM sold to Direct Purchasers?

27. The majority of DRAMs are sold by Defendants to Original Equipment Manufacturers (“OEMs”) who then incorporate DRAM into the manufacturing of DRAM containing products;
28. Micron sells some DRAM directly to consumers on its retail website, Crucial.com;
29. During the Class Period, approximately 90% of DRAM was sold pursuant to contracts between DRAM buyers and sellers, with the remaining 10% being sold on the spot market;
30. Contract prices are negotiated in advance and specify the quantity of the product that will be delivered by the seller to the buyer over an agreed timeframe. Contracts last approximately two weeks to one month, when they can be renegotiated;

31. The spot market is an informal market consisting of intermediaries and vendors that sell DRAM to the white box PC segment, which is comprised primarily of Chinese manufacturers, unbranded PC manufacturers, and unbranded module makers;
32. The spot and contract markets are sufficiently interrelated, with contract pricing being pegged to the spot price. Spot market pricing serves as an important benchmark for contract negotiations with OEMs. As subscribers to these services, each day, Defendants received these lists (before the general public) and used them as the benchmark for negotiating prices with contract customers. Therefore, when Defendants agreed to limit competition for the supply of DRAM, their conduct affected not just the spot price for DRAM but contract prices as well. As a result, contract prices and spot prices follow each other closely;

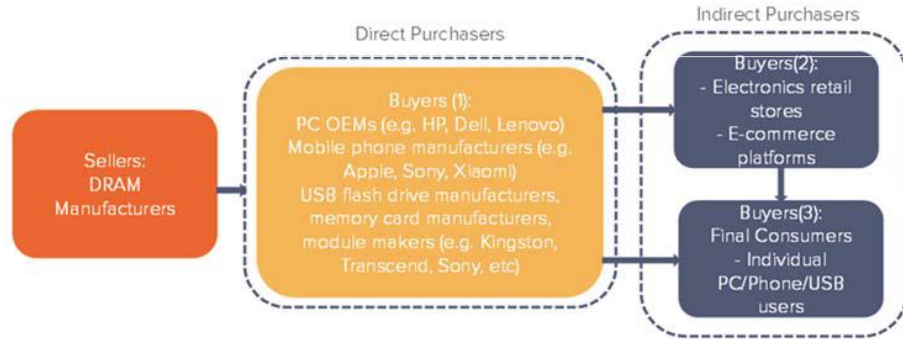
Contract and Spot Price Correlation



33. Direct Purchasers of DRAM use DRAM in products that they manufacture, including computers and mobile phones. Final goods with embedded DRAM, such as laptops and phones, are then sold on to indirect purchasers of DRAM. The chart below sets forth an example of how DRAM is sold to Indirect Purchasers;

DRAM Supply Chain

- The majority of DRAM manufacturers sell to direct purchasers on a contract basis (i.e. based on contract price)
- Final goods with embedded DRAM (e.g. laptops, phones, etc.) are then passed over to indirect purchasers



E. DRAM as a Commodity

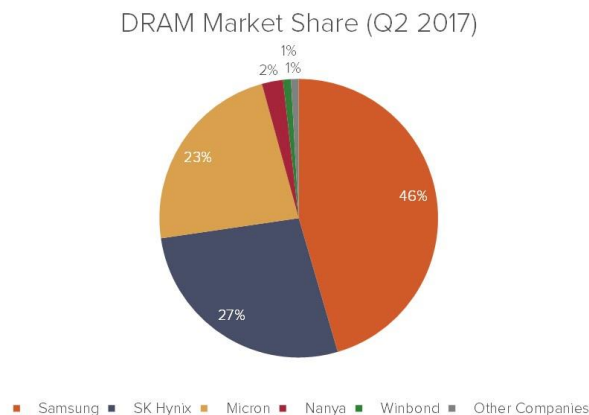
34. In economics, a commodity is a basic item or good used in commerce that is interchangeable with other goods of the same type. Commodities are most often used as inputs in the production of other goods or services. Examples of traditional commodities are sugar, wheat, and rubber. As technologies for markets and goods mature, a product is more likely to be considered a commodity, at least in its more basic implementations;
35. DRAM is one such commodity. It has been described as being like milk or bread, in that it varies little from manufacturer to manufacturer;
36. Markets for commodity products are conducive to collusion. Typically, when a product is characterized as a commodity, competition is based principally on price, as opposed to other attributes such as product quality or customer service. This factor facilitates coordination because firms wishing to form a cartel can more easily monitor and detect defections from a price-fixing agreement where any observed differences in prices are more likely to reflect cheating on the conspiracy than any other factor which might affect pricing, such as special product characteristics, service or other aspects of the transaction;
37. The commodity nature of DRAM is aided by industry-standard product specifications. The different sizes and classifications of DRAM are well known and easily quantifiable.

Therefore, DRAM can be purchased and sold in large volume quantities by manufacturers and distributors based on common size and technology characteristics. Indeed, manufacturers and distributors maintain very detailed product catalogs and substitution guides (sometimes called cross-reference guides) that outline rules for swapping out DRAM made by other Defendants based on their common characteristics;

F. The Structure of the DRAM Industry is Conducive to Conspiracy

38. The structure and characteristics of the DRAM market are conducive to cartel behavior and have made collusion particularly attractive in this industry. The DRAM market has all the hallmark features found in highly-cartelized markets, including: (1) DRAM is a commodity product; (2) the DRAM market is highly concentrated; (3) the DRAM market has high barriers to entry; (4) demand for DRAM is inelastic; and (5) the DRAM market experienced steep price increases during the Class Period, without any legitimate economic reason for those increases, such as increasing costs. There was also an ease of information sharing amongst Defendants through the industry reporting mechanism DRAMeXchange (an industry mechanism tracking Defendants' pricing and capacity movements, and to which Defendants all subscribe), as well as opportunities for Defendants to directly communicate and collude through common participation and leadership roles in trade associations and other industry groups;
39. Market concentration facilitates collusion. Collusive agreements are easier to implement and sustain when there are only a few firms controlling a large portion of the market. Practical matters, such as coordinating cartel meetings and exchanging information, are much simpler with a small number of players. Moreover, this high degree of control also simplifies coordination because there is little outside competitive presence to undermine the cartel, and it is easier for cartel participants to monitor each other's actions related to supply and pricing. Also, with fewer firms in the market, the bump in transitory profits that could be achieved by undercutting the cartel price and gaining an increase in transitory market share would be outweighed by the greater long-term market share for a colluding firm in a concentrated industry;

40. By contrast, if an industry is divided into a large number of small firms, the current gain from cheating on a cartel (profits from sales captured from other cartel members through undercutting of the cartel-fixed price in the current time period, which risks causing the cartel to fall apart in the future) is large relative to the firm's possible gains from the cartel's continuing future success (the firm's future share of the total cartel profits if collusion were to continue successfully);
41. In the 1980s there were over 20 DRAM manufacturers. By 2012, that number had dropped to fewer than 11 manufacturers;
42. The DRAM market is now highly concentrated. During the Class Period, the DRAM market was dominated by only three main players – Defendants Micron, Samsung, and SK Hynix. These companies collectively control the lion's share of these markets, and have existed in the market together for years;
43. As of March 2018, Defendants collectively accounted for 96% of worldwide DRAM market share. Samsung held 46% of worldwide DRAM market share. SK Hynix held 27% of worldwide DRAM market share. Micron held 23% of worldwide DRAM market share. A handful of other manufacturers made up the other 4% of worldwide market share;



44. A highly concentrated market makes it easier for Defendants to facilitate their conspiracy by making it easier to make agreements, form understandings, combinations or conspiracies to fix, raise, maintain, and/or stabilize prices, and/or to allocate market shares

and to set and keep prices at artificially high levels. In fact, throughout the Class Period, Defendants collectively maintained high market shares, and prices for DRAM remained astonishingly high;

45. The DRAM market has high barriers to entry, and barriers to entry are obstacles which prevent new competitors from easily entering the market. They restrict competition in a market and may make it easier for incumbents to collude;
46. A collusive arrangement that raises product prices above competitive levels would, under basic economic principles, attract new entrants seeking to benefit from the supra-competitive pricing. Where, however, there are significant barriers to entry, new entrants are less likely to enter the market. Thus, barriers to entry help to facilitate the formation and maintenance of a cartel;
47. There are substantial barriers to entry that preclude, reduce, or make it more difficult for new entrants into the DRAM market. As one market observer lamented, “DRAM development requires huge investment and poses risk,” and it is hard for new entrants to enter the market;

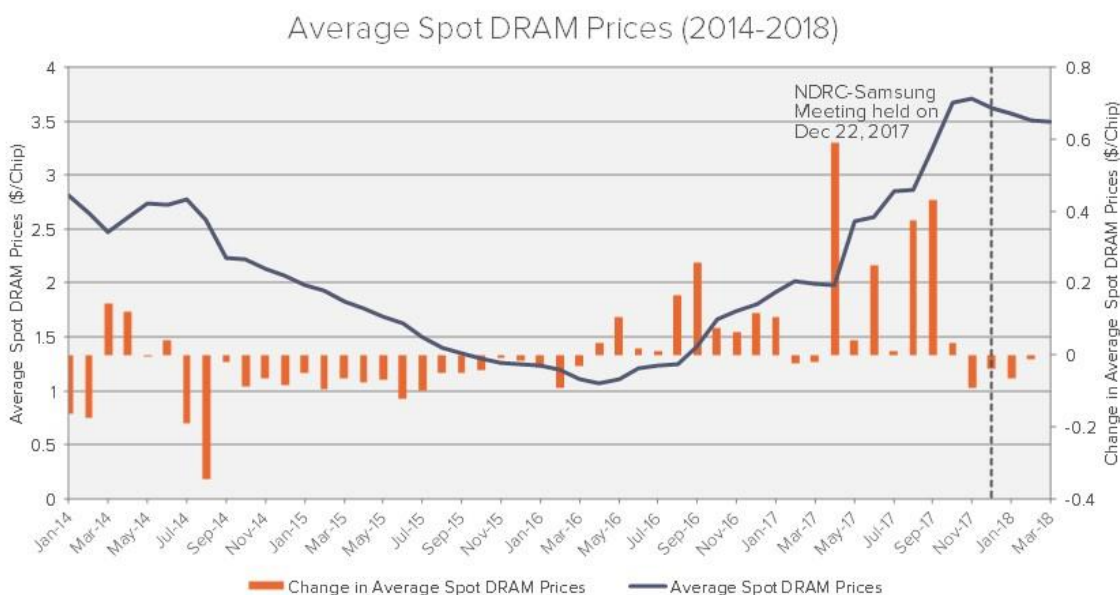
IV. OVERVIEW OF THE CONSPIRACY

48. Defendants combined and contracted to fix, raise, maintain, or stabilize the prices at which DRAM was sold from at least June 1, 2016 to February 1, 2018 (hereinafter the “**Class Period**”). Defendants’ conspiracy artificially inflated prices for DRAM throughout the supply chain that were ultimately passed through to Plaintiff and the Class Members, causing them to pay more for DRAM and products containing DRAM than they otherwise would have had it not been for Defendants’ conspiracy;
49. Prior to entering into the conspiracy, Defendants acted independently in deciding how to balance supply and capacity to meet industry demand for DRAM. Acting independently, firms sought to gain market share through increases in their supply;

50. For example, during the period from 2014-2015, the Defendant Samsung added wafer capacity throughout the period in an attempt to take market share from the other Defendants. DRAM prices fell during this time;
- 50.1 DRAM industry analysts were even foretelling a continued decline in the price and possible oversupply of DRAM based on economic factors and the overall state of the memory chip industry, namely in relation to the announcement by Samsung of the construction of a \$14 billion memory fab and the announcement by SK Hynix of a \$26 billion investment in the construction of two new memory fabs, the whole as appear of a March 2016 report from McKinsey & Company, a semiconductor manufacturer business counsel and industry analyst, titled “Memory: Are Challenges Ahead?”, communicated herewith as **Exhibit R-6**;
51. But in the face of the willingness of the three firms controlling the DRAM market to (...) secure market share through price competition (and supply increases), Defendants made a near simultaneous decision in 2016 to restrict growth in the supply of DRAM to stop the downward pressure on prices and, indeed, to cause DRAM prices to skyrocket upward;
52. Beginning no later than early 2016, through statements to investors and the industry, Defendants began to engage in controlled supply;
53. On March 30, 2016, Micron told its competitors that it would cease trying to take market share from Samsung and Hynix;
54. On April 28, 2016, Samsung responded to Micron’s invitation to cut supply by publicly announcing that its DRAM supply growth had turned negative. After these communications, by June 1, 2016, DRAM prices reversed course, started shooting upwards, and continued to do so throughout the Class Period;
55. During the Class Period, Defendants continued their efforts to coordinate their DRAM supply decisions, as reflected in public comments by Defendants that urged each other to keep industry supply in check. Defendants each made public statements affirming their

commitment to the common plan to curtail supply, and to not compete for each other's market share by supply expansion;

56. Defendants informed the other Defendants through public statements, that they would keep total wafer capacity flat in order to constrain DRAM supply growth, they would only grow DRAM supply between 15-20% in 2017, even as DRAM demand grew 20-25%, and that they would refrain from taking each other's market share. Defendants' statements were matched with conduct – affirmed in industry reports and analyses – which reinforced each's commitment to their common scheme.
57. As a result of Defendants' concerted actions to curtail supply and forego market share expansion, Defendants were able to raise DRAM prices steadily throughout the Class Period, and reap enormous profits, as shown in the chart below;



- 57.1. In June 2017, Samsung finished building its \$14 billion fab destined for DRAM production. However, instead of producing the DRAM in order to alleviate the DRAM shortage, Samsung chose instead to fabricate other types of memory chips from that facility;

58. On December 22, 2017, China's economic regulator, the National Development and Reform Commission (hereinafter the "NDRC") and Samsung held a meeting regarding

coordinated action among the Defendants in the DRAM industry;

59. On December 26, 2017, Reuters reported that the NDRC had begun an investigation into price-fixing by Defendants in the DRAM industry following the sharp rise in the price of memory chips between June 1, 2016 to December 2017, the whole as more fully appears from the Reuters news article titled “China Regulator Flags Greater Scrutiny on Chips After Price Surge”, dated December 26, 2017, communicated herewith as though recited at length herein, as **Exhibit R-4**(...) and various other articles reporting on the NDRC investigation, communicated herewith as **Exhibit R-7**, *en liasse*;
60. On February 1, 2018, it was reported that Samsung and the NDRC had entered into a Memorandum of Understanding (hereinafter “**MOU**”) where Samsung agreed to increase manufacturing capacity. The NDRC investigation and the agreement with Samsung caused Defendants’ conduct to change as they increased capacity and the Class Period came to an end after February 1, 2018, the whole as appears from Exhibit R-1A and from the article from EPS News titled “Samsung, NDRC Deal Will Cut DRAM Price Increase”, communicated herewith as **Exhibit R-8**; (...)
- 60.1. In March 2018, analysts of the semiconductor industry started questioning whether the DRAM suppliers were behind this historic ascension in the DRAM price by willingly stunting the product demand:

“In the 34-year period from 1978-2012, the DRAM price-per-bit declined by an average annual rate of 33%. However, from 2012 through 2017, the average DRAM price-per-bit decline was only 3% per year. Moreover, the 47% full-year 2017 jump in the price-per-bit of DRAM was the largest annual increase since 1978, surpassing the previous high of 45% registered 30 years ago in 1988!

In 2017, DRAM bit volume growth was 20%, half the 40% rate of increase registered in 2016. For 2018, each of the three major DRAM producers (e.g., Samsung, SK Hynix, and Micron) have stated that they expect DRAM bit volume growth to once again be about 20%. However, as shown in Figure 1, monthly year-over-year DRAM bit volume growth averaged only 13% over the nine-month period of May 2017 through January 2018.”

the whole as appear of the IC Insights article titled “Are the Major DRAM Suppliers Stunting DRAM Demand?”, dated March 6, 2018, communicated herewith as **Exhibit R-9**;

61. In April 2018, Hynix announced that it was adding wafer capacity in order to match increased demand – a change from the practice of the Defendants during the Class Period where they kept wafer capacity flat despite increasing demand;

61.1. In May 2018, the Chinese Ministry of Commerce met with Micron Technology’s representatives in another attempt to express its concerns toward the DRAM price increase, the whole as more detailed in the TrendForce article titled “China’s Ministry of Commerce Held Meeting with Micron, Which May Restrain the Price Increase of DRAM, Says TrendForce”, dated May 25, 2018, communicated herewith as **Exhibit R-10**;

61.2. Following the May 2018 meeting between China’s authorities and Micron’s representatives, namely in the first half of 2018, DRAM prices fell as a result of the change in behavior of Defendants;

61.3. At the end of 2018, the Financial Times announced that China’s anti-monopoly bureau had declared the following regarding the DRAM price fixing investigation:

“[t]he anti-monopoly investigation into these three companies has made important progress . . . [It] has yielded massive evidence”;

the whole as appears from the Financial Times article titled “China alleges “massive” evidence of chipmaker violations”, dated November 19, 2018, and the Data Center Dynamics article titled “China says it has evidence of DRAM price-fixing conspiracy”, dated November 21, 2018, communicated herewith, as **Exhibit R-11, en liasse**;

62. As a result of the scheme, DRAM prices soared during the Class Period, and so did Defendants’ revenue. During the Class Period, the price of a mainstream 4GB DRAM rose 130%, and Defendants’ revenue from global DRAM sales rose more than 50%. Between Q1 2016 and Q3 2017, Defendants’ revenues from global DRAM sales more than doubled. In Q3 2017, Samsung achieved a record-high revenue of \$8.7 billion from its global DRAM

sales (Q1 2016 revenue was \$3.9 billion); SK Hynix achieved record-high revenue of \$5.5 billion from its global DRAM sales (Q1 2016 revenue was \$2.3 billion), and Micron achieved record-high revenue of \$4.0 billion from its global DRAM sales (Q1 2016 revenue was \$1.5 billion);

63. In addition to Defendants' near simultaneous change in behavior, leading to severe price increases, during the Class Period, other "plus factors" also point squarely to collusion by Defendants. As previously stated, the DRAM market had all the hallmark features of a market conducive to collusion. While DRAM prices rose during the Class Period, costs did not rise so as to justify those increases, nor did changes in DRAM technology. Defendants also had the ability to track and monitor each other's price and supply movements through DRAMeXchange, before that information was made public;
64. The conspiracy alleged herein is also buttressed by the fact that Defendants have previously been convicted for conspiring to fix prices of DRAM. In 2005, the United States Department of Justice (hereinafter the "**US DOJ**") brought criminal charges against the very same Defendants named here (and other makers of DRAM that existed at the time) for participating in a conspiracy to fix prices of DRAM sold in the United States between 1999 and 2002. Samsung and SK Hynix pleaded guilty to the charges and paid some of the largest criminal fines in history for their illegal conduct. Micron also admitted its participation in the earlier DRAM conspiracy but was given amnesty from prosecution in exchange for its cooperation under the US DOJ's Antitrust Leniency Program. Fourteen individual employees of Defendants also pleaded guilty for their participation in the earlier DRAM conspiracy – paying fines of \$250,000 each and serving prison sentences ranging from seven to fourteen months. Defendants and their co-conspirators also collectively paid over \$650 million to settlement civil price-fixing claims related to their prior conduct in the DRAM market;
65. The US DOJ was not the only regulator to prosecute Defendants for participation in the prior DRAM conspiracy;

66. On October 19, 2011, Samsung was fined €145,727 million by the European Commission (hereinafter “EU”) for its role in fixing prices as part of a DRAM conspiracy between July 1, 1998 to June 15, 2002. Samsung received a reduction in its fines for acknowledging the cartel to EU investigators. The EU also fined Micron for its role in the same price-fixing conspiracy. However, Micron avoided payment as a result of being the first firm to reveal the cartel to investigators, and for its cooperation with the EU regulatory body;
67. In 2002, the Canadian Competition Bureau began an investigation into price-fixing in the DRAM market. The investigation was then put on hold. However, the investigation resumed on or about 2014 (after the EU investigation and case had concluded). After presenting evidence to Samsung and the other DRAM makers, Samsung and the other companies agreed to a \$120 million settlement agreement, with a \$40 million fine, and \$80 million to be paid back to Canadians who purchased computers (laptops or desktops), printers, memory modules, graphics cards, video game consoles, DVD players, personal digital assistants, MP3 players, personal video recorders, servers, computer based point of sale systems, or any other products containing DRAM between April 1, 1999 to June 30, 2002;
68. Given the repeated history of antitrust violations by Defendants in the DRAM market, and in related electronic component markets, it is even more plausible that Defendants conspired to restrict supply here, and thereby to raise or keep prices of DRAM artificially high during the Class Period, and reap high profits once again;
69. Defendants’ conspiratorial conduct between 2016 and 2018 violated the Competition Act, the Civil Code of Quebec, the Consumer Protection Act and the various consumer protection legislations across Canada. As a result, Plaintiffs and the Class Members paid artificially inflated prices for DRAM and products containing DRAM, and thereby suffered compensatory damages;
70. By reason of the unlawful activities alleged herein, Defendants substantially affected commerce throughout Canada, causing injury to Plaintiff and the Class Members. Defendants, directly and through their agents, engaged in a conspiracy to fix or inflate

prices of DRAM, which unreasonably restrained trade and adversely affected the market for DRAM;

71. Defendants' conspiracy and wrongdoing described herein adversely affected persons in Canada who purchased DRAM or products containing DRAM for resale and/or personal use, including Plaintiff and the Class Members;

V. DEFENDANTS' CONSPIRACY TO ARTIFICIALLY INCREASE THE DRAM PRICE

A. Before the Conspiracy: Competition Between Defendants Caused Price Decline

72. Between May 2014 and August 2014, the average spot price for DRAM ranged between \$2.50 to \$2.70 per chip;
73. Those prices went down month-by-month, and, by May 2016 (just before the start of the Class Period on June 1, 2016), average DRAM spot prices had fallen to \$1.00 per chip;
74. Between August 2014 and May 2016, prices for the most common types of DRAM – DDR3 and DDR – all declined steadily and precipitously. In that period, average spot prices for DRAM declined by more than 57%. In particular, from October 2014 to June 2016 alone, the average contact price of DDR3 4GB went down 62%, from \$32.75 to \$12.50;
75. Between August 2014 and May 2016, the three Defendants responsible for nearly all DRAM supply competed by, among other things, seeking to increase their own market share at the expense of their competitors. This competition led to supply exceeding demand such that prices for DRAM were in decline. This price competition gave Defendants a strong motive to collude;

B. Beginning of the Conspiracy: Defendants' Supply and Pricing Behavior Changed Abruptly at Start of Class Period

76. As previously mentioned, prior to the start of the Class Period, Defendants engaged in vigorous supply and price competition in 2014 and 2015;
77. Defendants' public coordination efforts began at the end of 2015 and steadily increased throughout the first half of 2016. In particular, Micron made public invitations for its competitors to stop adding wafer capacity and then to cut supply. Samsung, in response, stopped its efforts to aggressively take market share through additions of wafer capacity. The actions of Defendants were effective in causing DRAM prices to first stabilize and then start to rapidly increase throughout 2016;
78. In May 2016, with demand remaining steady, DRAM prices began to accelerate upward rapidly;
79. From that month in June 2016, and through the end of 2016, DRAM prices increased by 50 percent. Yet, unexpectedly absent coordination, during this timeframe each Defendants kept supply bit growth restrained by avoiding adding significant wafer capacity. At the same time, Defendants began to coordinate for 2017 on a plan of keeping supply bit growth below forecasted demand growth;
80. Defendants' conspiratorial conduct was tremendously effective in causing DRAM prices to skyrocket from the middle of 2016 to the end of 2017. During this period of time, DRAM spot prices rose nearly 350% – an increase totally unique compared to DRAM's prior pricing history;
81. Defendants' conduct further changed at the beginning of the Class Period. Through unlawful coordination, Defendants restrained DRAM supply growth by not adding new wafers, ensuring that DRAM prices rapidly rose as DRAM demand exceeded supply;
82. During the Class Period, Defendants agreed to delay or slow capacity, or not to expand capacity. This facilitated Defendants' ability to stop DRAM prices from falling and cause

prices to dramatically reverse course. One method Defendants effectuated their agreement was to communicate their shared intentions to limit DRAM capacity through public statements, and each taking actions in response;

83. Defendants made statements in earnings calls, press releases, media, or other public documents and monitored each other's plans. Defendants' statements about capacity discipline, limiting production or supply, not increasing supply/capacity, slowing growth in capacity or supply, etc. represented a deviation from past business practices;
84. By reassuring each other through these communications, Defendants demonstrated each was committed to maintaining capacity and supply discipline in the midst of steady demand and rising prices – unlike in 2014, and contrary to individual interest to increase market share and short-term profits, Defendants reaped huge profits during the Class Period;
85. As DRAM prices continued to rocket upward through the end 2016 and into the beginning of 2017, Defendants continued to not only make public statements about their own commitment to capacity and supply discipline, but also the importance of maintaining capacity and supply discipline within the industry as a whole, affirming their commitment to a common scheme to limit supply and capacity to drive up prices;
86. By 2017, Samsung had completely reversed its prior pattern of competitively adding market share and had grown market share less than its competitors and was not planning to take market share from competitors despite its supply capacity;

C. End of the Conspiracy: China's Investigation into the Defendants

87. DRAM prices continued to climb, and then abruptly stopped in early 2018, just after China's antitrust regulator, the NDRC, announced that it had begun an investigation into the DRAM industry due to the noticeable and sharp rise in the price of DRAM over the 18-month period from June 2016 to December 2017;

88. On December 26, 2017, a *Reuters* article (Exhibit R-4 and R-7(...)) reported that China's NDRC was investigating possible price-fixing in the DRAM market. Reuters reported that the investigation was looking into possible coordinated action taken by "a number of firms to gain maximum profits by pushing the price of the product as high as possible. A 'super cycle' of tight supply and soaring demand for memory chips, which power servers and smartphones, has been driving up prices and profits at chipmakers such as Samsung Electronics Co., Ltd. And SK Hynix, Inc. which control the lion's share of the global market";
89. As Xu Xinyu, an official with the Pricing Supervision Department of China's NDRC put it: "We have noticed the price surge and will pay more attention to future problems that may be caused by 'price fixing' in the sector." Xu Xinyu referred to "coordinated action taken by a number of companies, pushing the price of the product as high as possible to gain maximum profits";
90. On or about February 1, 2018, it was reported that the NDRC and Samsung signed a Memorandum of Understanding that would result in moderations to the price increases of DRAM in 2018 (R-8);
91. In April 2018, Hynix publicly announced that it was adding wafer capacity by 6-7% per year in order to meet demand growth. This addition of wafer capacity was a change in practice from the Class Period where the Defendants artificially constrained the growth of wafer capacity in order to inflate the price of DRAM;
- 91.1. In May 2018, the Chinese anti-monopoly authorities also met with Micron's representative in order to express their concerns about DRAM pricing (Exhibit R-11);
92. Defendants' illegal behavior, alleged herein, artificially stabilized and raised the prices of DRAM during the Class Period. As a result, DRAM prices were higher than they would have been absent the conspiracy. The rise in DRAM prices, however, cannot be legitimately explained away by the economics of the market. Leading up to and during the Class Period, costs remained low or stable and there were not technological or other

impactful events, such as unexpected growth in demand, that would explain the extraordinarily high prices for DRAM during that time;

92.1. It was only after the Chinese investigation was launched and after various class action proceedings were filed in United States and Canada did Defendants modify their behavior, and the DRAM prices then started to return to normal;

VI. FACTS GIVING RISE TO AN INDIVIDUAL ACTION BY THE PLAINTIFF

A. Plaintiff's Claim

93. On December 2, 2017, Plaintiff purchased an Apple iPhone 7 smartphone with an integrated DRAM manufactured by one of the Defendants;
94. As is the case of the other Class Members' DRAM containing products purchased during the Class Period, the price of Plaintiff's iPhone 7 was artificially increased as a result of the Defendants' above-detailed cartel;
95. On April 27, 2018, Plaintiff learned through online media about the California Action being filed. He recognized himself as an affected consumer, and subsequently contacted the undersigned Class Counsel;
96. Before hearing of the California Action, Plaintiff (as is the case for the other Class Members) had not otherwise been made aware of the DRAM price-fixing cartel of the Defendants;
97. The Plaintiff and the Class Members, in good faith, were reasonably justified in assuming that Defendants would charge a fair price for their products as based on healthy competition and market forces, Defendants clearly did not;
98. Plaintiff suffered financial damages as an Indirect Purchaser, by overpaying for his iPhone 7;

B. Punitive Damages

99. For all of the reasons more fully detailed above, which are reiterated as though recited at length in the present section, Plaintiff respectfully submits that Defendants were intentionally engaging in these anti-competitive measures and are liable to pay punitive damages to the Class Members;
100. Considering the above and considering the fact that Defendants have violated various laws which have been enacted to protect the Class Members, Defendants are liable to pay punitive damages to all of the Class Members, aside from any other compensatory damages suffered by the Class Members;
101. Defendant's above detailed actions qualify its fault as intentional which is a result of wild and foolhardy recklessness in disregard for the rights of the Class Members, with full knowledge of the immediate and natural or at least extremely probable consequences that its action would cause to the Class Members, seeing as how this had happened before;
102. Defendant's negligence has shown a malicious, oppressive and high-handed conduct that represents a marked departure from ordinary standards of decency. In that event, punitive damages should be awarded to Class Members;

VII. **FACTS GIVING RISE TO AN INDIVIDUAL ACTION BY EACH OF THE CLASS MEMBERS**

103. Every Class Member has overpaid for DRAM and/or for the various products in which the Defendants' DRAM were integrated, including laptops, desktop computers, smartphones and other electronic devices;
104. Every Class Member has experienced out-of-pocket losses due to Defendants' intentional anti-competitive behavior and actions;

VIII. CONDITIONS REQUIRED TO INSTITUTE A CLASS ACTION

105. The composition of the Group makes it difficult or impracticable to apply the rules for mandates to sue on behalf of others or for consolidation of proceedings (Article 575 (3) C.C.P.) for the following reasons;
106. Plaintiff is unaware of the specific number of persons included in the Class but, as mentioned above, it appears that the Defendants sold DRAM across Canada for a period of nearly two years (from at least June 1, 2016 to February 1, 2018) and thus there are clearly tens of thousands of Class Members across Canada, if not much more, since the DRAM in question are built into most electronic devices purchased by Canadians each day;
107. Class Members are numerous and are scattered across the entire province and country since Defendants sold DRAM across the country, including Quebec;
108. In addition, given the costs and risks inherent in an action before the Courts, many people will hesitate to institute an individual action against Defendants. Even if the Class Members themselves could afford such individual litigation, the Court system could not as it would be overloaded. Further, individual litigation of the factual and legal issues raised by the conduct of Defendants would increase delay and expense to all parties and to the Court system;
109. Moreover, a multitude of actions instituted risks leading to contradictory judgments on issues of fact and law that are similar or related to all Class Members;
110. These facts demonstrate that it would be impractical, if not impossible, to contact each and every Class Member to obtain mandates and to join them in one action;
111. In these circumstances, a class action is the only appropriate procedure for all of the Class Members to effectively pursue their respective rights and have access to justice;
112. The damages sustained by the Class Members flow, in each instance, from a common nucleus of operative facts, namely Defendants' fault;

113. The claims of the Class Members raise identical, similar or related issues of law and fact (Article 575 (1) C.C.P.), namely:

- a) Did the Defendants engage in an agreement, arrangement, collusion and/or conspiracy to fix, raise, maintain or stabilize the prices of dynamic random-access memory (“DRAM”) and, if so, during which period did this cartel produce its effects on the Class Members?
- b) Did the Defendants conceal this cartel?
- c) Does the participation by the Defendants in this cartel constitute a fault which engages the Defendants’ solidary liability toward the Class Members?
- d) Did this cartel have the effect of increasing the price paid for the purchase of DRAM and/or products containing DRAM and, if so, does this increase constitute damages claimable by the Class Members?
- e) What is the total aggregate amount of damages suffered by the entire group of Class Members, which includes Direct Purchasers of DRAM and Indirect Purchasers of DRAM?
- f) Are the Defendants solidarily liable to pay all investigation costs, extrajudicial legal costs, legal costs, and/or other disbursements engaged or to be engaged on behalf of the Class Members in this file?
- g) Are the Class Members entitled to seeks injunctive relief in order to have this Honorable Court order the Defendants not to engage in any agreement, arrangement, collusion and/or conspiracy in the future to fix, raise, maintain or stabilize the prices of DRAM?
- h) Are the Defendants solidarily liable to pay punitive and/or exemplary damages to the Class Members, and, if so, what is the measure of these damages?

114. The interests of justice favor that this application be granted in accordance with its conclusions;

IX. NATURE OF THE ACTION AND CONCLUSIONS SOUGHT

115. The action that Plaintiff wishes to institute for the benefit of the Class Members is a price-

fixing action seeking damages and injunctive relief;

116. The facts alleged herein appear to justify the conclusions sought by the Plaintiff (Article 575 (2) C.C.P.), namely the following conclusions that Plaintiff wishes to introduce by way of an originating application:

GRANT the class action of the Plaintiff and each of the Class Members against the Defendants;

ORDER the Defendants to permanently cease from continuing or maintaining or engaging in any agreement, arrangement, collusion, and/or conspiracy to fix, raise, maintain or stabilize the prices of DRAM;

DECLARE the Defendants solidarily liable for the damages suffered by the Plaintiff and each of the Class Members;

CONDEMN the Defendants solidarily to pay to each Class Member a sum to be determined in compensation of the damages suffered, and **ORDER** collective recovery of these sums;

CONDEMN the Defendants solidarily to pay to each of the Class Members a sum to be determined in punitive and/or exemplary damages, and **ORDER** collective recovery of these sums;

CONDEMN the Defendants solidarily to pay interest and additional indemnity on the above sums according to law from the date of service of the application for authorization;

ORDER the Defendants to deposit in the office of this Court the totality of the sums which forms part of the collective recovery, with interest, indemnity, and costs;

ORDER that the claims of individual Class Members be the object of collective liquidation if the proof permits and alternately, by individual liquidation;

CONDEMN the Defendants solidarily to bear the costs of the present action including investigation costs and disbursements, extrajudicial legal costs, legal costs and disbursements;

THE WHOLE with interest and additional indemnity provided for in the Civil Code of Quebec and with full costs and expenses including expert's fees and publication fees to advise Class Members;

RENDER any other Order(s) that this Honorable Court shall determine and that is/are in the interest of the Class Members;

117. Plaintiff suggests that this class action be exercised before the Superior Court in the District of Montreal for the following reasons:

- a) Plaintiff resides in the District of Montreal;
- b) A great number of Class Members reside in the judicial District of Montreal and/or purchased the DRAM and/or devices containing DRAM, during the Class Period, in the District of Montreal;
- c) Defendant Samsung Canada has its elected domicile in the District of Montreal (Exhibit R-3),
- d) The undersigned attorneys representing the Plaintiff and the proposed Group practice in the District of Montreal;

118. Plaintiff, who is requesting to be appointed as Representative Plaintiff, is in a position to properly represent the Class Members (Article 575 (4) C.C.P.), since:

- a) He is an Indirect Purchaser, having purchased an Apple iPhone 7 smartphone with an integrated DRAM manufactured by one of the Defendants, during the Class Period;
- b) As detailed above, he learned about the California Action, researched the issue online and then contacted the undersigned Class Counsel on his behalf and on behalf of the Class Members;
- c) He understands the nature of the action and has the capacity and interest to fairly and adequately protect and represent the interest of the Class Members;
- d) He is available to dedicate the time necessary for the present action before the Courts of Quebec and to collaborate with Class Counsel in this regard and Plaintiff

is ready and available to manage and direct the present action in the interest of the Class Members that Plaintiff wishes to represent;

- e) Plaintiff is determined to lead the present file until a final resolution of the matter, the whole for the benefit of the Class Members;
- f) His interests are not antagonistic to those of other Class Members;
- g) He has given the mandate to the undersigned attorneys to obtain all relevant information to the present action and intends to keep informed of all developments;
- h) He has given the mandate to the undersigned attorneys to post the present matter on their firm website in order to keep the Class Members informed of the progress of these proceedings and in order to more easily be contacted or consulted by said Class Members. In this regard, the Plaintiff files as **Exhibit R-13, en liasse, confidentially, under seal and without waiving professional secrecy, the online submissions received from multiple Class Members across the country, as though recited at length herein. Plaintiff reserve the right to file additional communications received from the Class Members in this regard, for the purposes of further fulfilling the burden to demonstrate an arguable case at the authorization hearing herein;**
- i) He, with the assistance of the undersigned attorneys, is ready and available to dedicate the time necessary for this action and to collaborate with other Class Members and to keep them informed;

119. The present application is well founded in fact and in law;

FOR THESE REASONS, MAY IT PLEASE THE COURT:

GRANT the present Application;

AUTHORIZE the bringing of a class action in the form of an Application to institute proceedings in damages and injunctive relief in the District of Montreal;

APPOINT the Plaintiff as the Representative Plaintiff representing all persons included in the Class herein described as:

All persons or entities in Canada (subsidiarily in Quebec) who, between at least June 1, 2016 and February 1, 2018, acquired dynamic random-access memory (“**DRAM**”) directly from one of the Defendants (the “**Direct Purchasers**”) or who acquired DRAM and/or products containing DRAM either from a Direct Purchaser or from another indirect purchaser at a different level in the distribution chain (the “**Indirect Purchasers**”), or any other Group(s) or Sub-Group(s) to be determined by the Court;

IDENTIFY the principle issues of law and fact to be treated collectively as the following:

- a) Did the Defendants engage in an agreement, arrangement, collusion and/or conspiracy to fix, raise, maintain or stabilize the prices of dynamic random-access memory (“DRAM”) and, if so, during which period did this cartel produce its effects on the Class Members?
- b) Did the Defendants conceal this cartel?
- c) Does the participation by the Defendants in this cartel constitute a fault which engages the Defendants’ solidary liability toward the Class Members?
- d) Did this cartel have the effect of increasing the price paid for the purchase of DRAM and/or products containing DRAM and, if so, does this increase constitute damages claimable by the Class Members?
- e) What is the total aggregate amount of damages suffered by the entire group of Class Members, which includes Direct Purchasers of DRAM and Indirect Purchasers of DRAM?
- f) Are the Defendants solidarily liable to pay all investigation costs, extrajudicial legal costs, legal costs, and/or other disbursements engaged or to be engaged on behalf of the Class Members in this file?
- g) Are the Class Members entitled to seek injunctive relief in order to have this Honorable Court order the Defendants not to engage in any agreement, arrangement, collusion and/or conspiracy in the future to fix, raise, maintain or stabilize the prices of DRAM?
- h) Are the Defendants solidarily liable to pay punitive and/or exemplary damages

to the Class Members, and, if so, what is the measure of these damages?

IDENTIFY the conclusions sought by the class action to be instituted as being the following:

GRANT the class action of the Plaintiff and each of the Class Members against the Defendants;

ORDER the Defendants to permanently cease from continuing or maintaining or engaging in any agreement, arrangement, collusion, and/or conspiracy to fix, raise, maintain or stabilize the prices of DRAM;

DECLARE the Defendants solidarily liable for the damages suffered by the Plaintiff and each of the Class Members;

CONDEMN the Defendants solidarily to pay to each Class Member a sum to be determined in compensation of the damages suffered, and **ORDER** collective recovery of these sums;

CONDEMN the Defendants solidarily to pay to each of the Class Members a sum to be determined in punitive and/or exemplary damages, and **ORDER** collective recovery of these sums;

CONDEMN the Defendants solidarily to pay interest and additional indemnity on the above sums according to law from the date of service of the application for authorization;

ORDER the Defendants to deposit in the office of this Court the totality of the sums which forms part of the collective recovery, with interest, indemnity, and costs;

ORDER that the claims of individual Class Members be the object of collective liquidation if the proof permits and alternately, by individual liquidation;

CONDEMN the Defendants solidarily to bear the costs of the present action including investigation costs and disbursements, extrajudicial legal costs, legal costs and disbursements;

THE WHOLE with interest and additional indemnity provided for in the Civil Code of Quebec and with full costs and expenses including expert's fees and publication fees to advise Class Members;

RENDER any other Order(s) that this Honorable Court shall determine and that is/are in the interest of the Class Members;

DECLARE that all Class Members who have not requested their exclusion from the Class in the prescribed delay to be bound by any Judgment to be rendered on the class action to be instituted;

FIX the delay of exclusion at 30 days from the date of the publication of the notice to the Class Members;

ORDER the publication and notification of a notice to the Class Members in accordance with Article 579 C.C.P. pursuant to a further order of the Court and **ORDER** Defendants to pay for all said publication costs;

THE WHOLE with costs including the costs related to preparation and publication of the notices to Class Members, the *timbre judiciaire*, and all costs related to the international service and translations of the proceedings in accordance with the Hague Convention.

MONTREAL, April 14, 2021 (...)

(s) Lex Group Inc.

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Per: David Assor
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**SUPERIOR COURT
(CLASS ACTION)**

**PROVINCE OF QUEBEC
DISTRICT OF MONTREAL**

G ■ H ■

Plaintiff

-vs-

MICRON TECHNOLOGY, INC.

MICRON SEMICONDUCTOR PRODUCTS, INC.

SAMSUNG ELECTRONICS CO LTD.

SAMSUNG SEMICONDUCTOR, INC.

SAMSUNG ELECTRONICS CANADA INC.

SK HYNIX, INC.

SK HYNIX AMERICA, INC.

Defendants

**AMENDED APPLICATION FOR
AUTHORIZATION TO INSTITUTE A CLASS
ACTION**

ORIGINAL

Me David Assor



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