

***Case No COMP/JV.44 -
HITACHI / NEC - DRAM
/ JV***

Only the English text is available and authentic.

**REGULATION (EEC) No 4064/89
MERGER PROCEDURE**

Article 6(1)(b) NON-OPPOSITION
Date: 03/05/2000

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COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 3.05.2000

In the published version of this decision, some information has been omitted pursuant to Article 17(2) of Council Regulation (EEC) No 4064/89 concerning non-disclosure of business secrets and other confidential information. The omissions are shown thus [...]. Where possible the information omitted has been replaced by ranges of figures or a general description.

PUBLIC VERSION

MERGER PROCEDURE
ARTICLE 6(1)(b)

To the Notifying Parties

Dear Sirs,

Subject: Case No COMP/JV. 44 HITACHI / NEC - DRAM / JV

Notification of 28 March 2000 pursuant to Article 4 of Council Regulation No 4064/89

1. On 28 March 2000, the Commission received a notification of a proposed concentration pursuant to Article 4 of Council Regulation (EEC) No 4064/89 by which the Japanese undertakings Hitachi, Ltd. ("Hitachi") and NEC Corporation ("NEC") acquire, within the meaning of Article 3(1)(b) of the Regulation, joint control of NEC-Hitachi Memory, Inc. (the "JV"), a newly created company constituting a joint venture, by way of purchase of shares. The JV is to be engaged in the design, development and sales of Dynamic Random Access Memory ("DRAM").
2. After examination of the notification, the Commission has concluded that the notified operation falls within the scope of Council Regulation (EEC) No 4064/89 and does not raise serious doubts as to its compatibility with the common market and with the EEA Agreement.

I. THE PARTIES' ACTIVITIES AND THE OPERATION

3. Hitachi, headquartered in Tokyo, Japan, is a global electronics company. The Hitachi group comprises around 1000 subsidiaries world-wide. Hitachi has subsidiaries in almost all of the members states of the European Union. The company manufactures and markets a wide range of products, including computers, semiconductors, consumer products and power and industrial equipment.

4. NEC is a Japanese-based provider of electronic products and services. The NEC group comprises a network of around 250 consolidated subsidiaries. NEC's subsidiaries in the European Union are located in, France, Germany, Ireland, Italy, the Netherlands, Portugal, Spain, Sweden and the United Kingdom. NEC manufactures and markets a full spectrum of products and systems in semiconductors, electronic devices, communications, computer peripherals, imaging, and computers.
5. The proposed concentration is established by a Joint Venture Agreement (“JVA”) between Hitachi and NEC, dated 29 November 1999. Following this agreement the JV was incorporated in December 1999 as a Japanese company under the name NEC-Hitachi Memory, Inc. The JV is to be engaged in the design, development and sales of DRAMs. However the functioning of the JV and the agreement between NEC and Hitachi and NEC will be implemented in three stages over a period of at least two years in order to establish completely the JV on the market. Starting in [...], the JV's first task will be to conduct joint development with respect to Hitachi's and NEC's next generation DRAMs [...]. Then in [...], the JV will set up its own sales channels through which it will sell both existing NEC and Hitachi's DRAMs as well as the next generation DRAMs eventually developed by the JV. Finally in [...], the JV will design, develop and sell DRAMs under a common brand. According to the JVA, the JV will have full unconditional access to the main production facilities of Hitachi and NEC pursuant to toll manufacturing agreements, which have still to be signed. [...]. At this date, Hitachi will withdraw entirely from the DRAM market. NEC will for a temporary period of 2 to 3 years still produce customer specific DRAMs through other facilities. At some point, the JV may also have its own DRAM production facility to manufacture the products itself. This eventuality is indicated in the Articles of Incorporation of the JV made under Japanese Law.

A. Joint Control

6. According to the JVA, each party will own 50% of the shares in the JV. NEC and Hitachi will exercise their voting rights at the meetings of JV's shareholders. [...].
7. The JV Board will consist of maximum 10 directors. Hitachi and NEC will have an equal number of directors, who will be elected at a general meeting of shareholders. NEC may nominate the first President of the JV, and Hitachi may nominate the first Executive Vice President of the JV. The following Presidents and Executive Vice Presidents will be determined through consultation of both parties. The Board of Directors will be jointly responsible for the day-to-day management of the JV. Resolutions by the board of directors will be adopted unanimously by the members that are present at board meetings, at which at least two-thirds of all directors are present.
8. It follows that decisions need the approval of both parties and that they therefore exercise decisive influence over the joint venture. Hitachi and NEC therefore jointly control the joint venture.

B. Full Function Joint Venture

9. At the end of the three stages of implementation of the JV, the JV will have established its own sales channels, through which it will have independent access to the DRAMs market using its exclusive brand. It will have secured its independent purchase of DRAMs on the basis of toll manufacturing agreements entered into with the parent companies. If production capacity is not sufficient, the JV may sell DRAMs produced by third parties.

10. According to the JVA, the JV will have access to the intellectual property rights necessary for the business operations, which it will licence from NEC and Hitachi. Intellectual property rights resulting from independent development activities by the JV will belong to the JV. In the electronics industry, the costs of essential research and development have risen and now constitute a significant proportion of the price of the final component. It follows that the ownership of intellectual property rights is crucial for the design of new electronic components. Indeed, technology and intellectual property rights appear to be the most valued good in the electronic industry.
11. The JV will have its own offices and its own management dedicated to day-to-day operations as well as a significant number of its own employees.
12. The joint venture will therefore perform on a lasting basis all the functions of an autonomous economic entity. The proposed operation, therefore, constitutes a concentration within the meaning of Article 3(1)(b) of the Merger Regulation.

II. COMMUNITY DIMENSION

13. The combined aggregate worldwide turnover in fiscal year 1998 of Hitachi (EUR 54,485 million) and NEC (EUR 32,507 million) exceeds the EUR 5,000 million¹ threshold. Each of them had a Community-wide turnover in fiscal year 1998 in excess of EUR 250 million [...]. Neither Hitachi nor NEC achieve more than two-thirds of their aggregate Community-wide turnover within a single Member State. The notified operation therefore has a Community dimension. It does not constitute a co-operation case under the EEA Agreement, pursuant to Article 57 of that Agreement.

III. COMPETITIVE ASSESSMENT

A. Relevant product market(s)

14. The notifying parties state that there is a relevant product market for DRAMs. DRAMs are semiconductors that store binary data and are mainly used in computers. Semiconductors are part of the electronic components sector.
15. DRAMs can be differentiated according to the memory size (e.g. the quantity of data that can be stored on the chips). This size depends on the generation of the chips (e.g. the density and the size of the transistors and the circuits installed on the chip). Today the base memory is 64 megabits (corresponding to a technology of around 0.25 micron as the average size of the transistors and the circuits). The product is subject to a rapid technological change with a new generation arriving on the market every 3 or 4 years.
16. DRAMs can also be differentiated according to their intended application (FPM-DRAM, EDO-DRAM, SDRAM, or RDRAM) or to the type of the final product where they are installed: servers, PCs, mobiles, games, network devices, PC peripherals, and others. PCs account for approximately 70% of the total demand for DRAMs.

¹ Turnover calculated in accordance with Article 5(1) of the Merger Regulation and the Commission Notice on the calculation of turnover (OJ C66, 2.3.1998, p25). To the extent that figures include turnover for the period before 1.1.1999, they are calculated on the basis of average ECU exchange rates and translated into EUR on a one-for-one basis.

17. Other types of chips exist such as SRAMs, EPROMs and ASICs. In general, these perform different functions from DRAMs and cannot be regarded as substitutes for them.
18. However, DRAMs are commodity products whose specifications are standardised by JEDEC (Joint Electron Device Engineering Council). From the demand side, the same type of DRAMs is therefore available to customers from various suppliers around the world. An independent market² study and third parties have confirmed that new generations of DRAMs are targeted to compete with older ones. The preference of a customer for a specific type depends on the cost-performance relationship and the function of the DRAM in the end product.
19. From the supply side, DRAM manufacturers can switch production between different functional types of DRAM using the same manufacturing facility, as the technologies employed are similar. However, switching between different generations of DRAM is in general not easy within a particular facility. The switch may cause significant technology investment costs and important production ramp-up time. These costs have increased with each new generation of DRAMs, mainly because of the costs of the Research and Development.
20. However, it is not necessary to further delineate the relevant product markets³ because, in all alternative market definitions considered, effective competition would not be significantly impeded in the EEA or any substantial part of that area.

B. Relevant geographic market(s)

21. The notifying parties state that the relevant geographic market is at least European-wide, because of low transportation costs and the lack of both structural barriers to market entry and import tariffs. Third parties, which replied to the Commission's request for information, have confirmed this analysis.
22. However, since the investigation revealed that the concentration would not create or strengthen a dominant position as a result of which effective competition would be significantly impeded in the EEA or in any substantial part of that area, the question of whether markets were national or EEA-wide could be left open⁴.

C. Assessment

23. Both Hitachi and NEC are currently active in the market for DRAMs.
24. According to available data⁵, their aggregate market share of sales of DRAMs in 1998 in the EEA is [0-15]%. A number of third parties which replied to the Commission's request

² Source: Dataquest

³ The Commission has previously not found it necessary to differentiate between the different types of DRAMs, see decisions in cases IV/JV.22 Fujitsu/Siemens at para. 41 and IV/M.1492 Hyundai electronics/LG Semicon at para 9.

⁴ The Commission has previously not found it necessary to define the geographic scope of the DRAM market and the semiconductors markets, see decisions in cases IV/JV.22 Fujitsu/Siemens at para. 47 and IV/M.1492 Hyundai electronics/LG Semicon at para 11.

⁵ Source Dataquest (May 1999)

for information, have confirmed those figures and indicated a decrease in the aggregated market share of Hitachi and NEC for 1999.

25. On a national level, the parties aggregated share of sales in 1998 also does not exceed 15% in any Member State except in Italy. The table below indicates the parties' position in the EEA and in Italy:

sales of DRAMs in 1998	EEA	Italy
Hitachi	[0-15]%	[0-15]%
NEC	[0-15]%	[0-15]%
JV	[0-15]%	[15-30]%

26. The parties face significant competitors throughout the EEA, including in Italy. In 1998, in the EEA, the market share were the following: Hyundai/LG Semicon⁶: [15-30]%; Samsung: [15-30]%; Siemens [0-15]%, Micron: [0-15]%, Fujitsu: [0-15]%; Mitsubishi: [0-15]%, IBM: [0-15]%. A number of third parties which replied to the Commission's request for information, have confirmed those figures and indicated a similar situation on the worldwide market.
27. Other elements also prove the strong competition existing on the market for DRAMs. First, the product is subject to rapid technological change as there is a constant need for new generations of DRAMs with improved properties. As a result, the market is very dynamic with strong competition with respect to innovation. The market share can evolve quickly with the arrival of a new generation of DRAMs. As the commercial lifetime of DRAMs has shortened with each new generation, the changes in the market positions may be very quick. Second, most customers are major Original Equipment Manufacturers, which command significant bargaining power and impose a strong competition from the suppliers. Third, prices are unpredictable and fluctuate strongly with a strong downward tendency caused by short cycles of shortage and oversupply, by the customers' strong purchasing power and finally by the fierce competition between DRAM manufacturers. Fourth, supply and demand inter-react almost immediately. These findings are in line with the views expressed by third parties which replied to the Commission's request for information and with a previous Commission decision⁷.
28. In addition, despite the important cost involved in Research and Development or in the production facilities, barriers to entry in this market have proven to be surmountable. Several companies, in particular Taiwanese companies, have recently entered the market. In particular with respects to Intellectual Property Rights, DRAM manufacturers often license these rights and produce DRAMs under license. There are no barriers to entry either from a structural or regulatory base or from the point of view of the raw material (silicon)

⁶ Hyundai and LG Semicon have merged in 1999.

⁷ See decision in case IV/JV.22 Fujitsu/Siemens at para. 57

used to produce semiconductors. These findings are in line with the views expressed by third parties which replied to the Commission's request for information.

29. In view of the market position of the parties to the concentration and of the significant competitive constraints from the customers and from the other DRAMs suppliers, it appears that the notified operation will have no significant impact on competition in the EEA or in any Member State. Consequently, the proposed concentration does not create or strengthen a dominant position as a result of which effective competition would be significantly impeded in the EEA or any substantial part of that area.

D. Co-ordination of competitive behaviour

30. Pursuant to Article 2(4) of the Merger Regulation, to the extent that the creation of a joint venture has as its object or effect the co-ordination of the competitive behaviour of (at least two) undertakings that remain independent, such co-ordination shall be appraised in accordance with the criteria of Article 81(1) and (3) of the EC Treaty. In order to establish a restriction of competition in the sense of Article 81(1) of the EC Treaty, it is necessary that the co-ordination of the parent companies' competitive behaviour is likely and appreciable and that it results from the creation of the joint venture, be it as its object or its effect.

a) Candidate markets for co-ordination

31. According to Article 2(4)(2) of the Merger Regulation, the Commission shall, when making the said appraisal, take into account in particular whether two or more parent companies retain to a significant extent activities in the same market as the joint venture or in a market that is upstream or downstream from that of the joint venture or in a neighbouring market closely related to this market. Therefore, candidate markets for co-ordination are those on which the joint venture and at least two parent companies remain active, or closely related neighbouring markets where at least two parent companies are active or markets upstream or downstream from the joint venture, in which at least two parent companies are active.

1) Relevant product markets

32. As mentioned above the JV will be active in the design, development and sales of DRAMs. Hitachi and NEC will remain active in the market for DRAMs in the start up phase of the JV. Hitachi will withdraw entirely from the DRAM market once the toll manufacturing production agreement will have been signed with the JV. NEC will remain present in the market for a longer period to produce customer specific DRAMs. This particular production will be phased out over a period of two to three years. Therefore both Hitachi and NEC will eventually transfer their activities in the DRAM market to the JV. The DRAM market is not a candidate market for co-ordination since NEC will be the only parent company to remain active temporarily in this market and since both parent companies will have eventually withdrawn from the market.
33. The parent companies are not present in a market upstream from that of the joint venture. The parent companies will remain active outside of Japan in only one downstream market: the market for PCs. All PCs contain DRAMs to store the data used by microprocessor. They amount to approximately 70% of the DRAM consumption. The parties will also remain active in a number of neighbouring markets such as the markets for

microcomputers, microcomponents, SRAMs (Static Random Access Memory), EPROMs (Erasable Programmable Read Only Memory), Flash Memories, ASICs (Application Specific Integration Circuit) and other electronic components. The various markets for electronic components are considered as neighbouring markets from that of the JV because the technologies used to produce the components are similar and the results of Research and Development in one market may be used in another.

34. For the reasons set out in the assessment below the definition of further candidate markets for co-ordination can, however, be left open.

2) Relevant geographic markets

35. The Commission has indicated in previous decisions that the relevant geographic market for PCs⁸ and for electronic components⁹ was likely to be at least EEA-wide, because of the small transport costs relative to prices, the similarity of customer preferences, the product specifications and the pattern of sales of major OEMs throughout the EEA. The question was however left open. For the purpose of this case it is not necessary to further delineate the relevant geographical market, because the analysis would be similar for all alternative geographic markets considered.

b) Assessment under Art 2(4)

36. There is no evidence to support the conclusion that the JV has the object of co-ordinating the competitive behaviour of NEC and Hitachi in the candidate markets for co-ordination. However, it might be the effect of the operation to give way to co-ordination of competitive behaviour of NEC and Hitachi in all these candidate markets.
37. In making the assessment whether co-operation between the parent companies in the joint venture might have the effect of giving rise to co-ordination in the parties' shares of sales in the candidate market, the structure of the candidate market and the structural change resulting from the creation of the joint venture are relevant.
38. In the market for PCs, the combined presence of NEC and Hitachi in the EEA and in all the Member States is negligible. The figures¹⁰ indicate that NEC had a market share, in 1998, of around [0-15]% world-wide and around [0-15]% in Western Europe (including Packard Bell-NEC, a wholly-owned subsidiary of NEC). Hitachi's market share world-wide and in Western Europe is negligible (the only region where Hitachi appears to have a significant market share is Japan). These very low market shares and the quasi absence of Hitachi in all the relevant geographic markets, make co-ordination of the competitive behaviour of NEC and Hitachi in the market for PCs either unlikely or not appreciable. Therefore, it is not necessary to establish a causal link between the creation of the JV and the behaviour of the parent companies outside the JV on this downstream market.

⁸ See decision in case IV/JV.22 Fujitsu/Siemens at para. 23 and 25

⁹ See decision in cases IV/M.1492 Hyundai Electronics/LG Semicon at para.10 and IV/JV.22 Fujitsu/Siemens at para. 47

¹⁰ Source Dataquest and IDC

39. In the neighbouring markets mentioned above (microcomponents, SRAMs, Flash Memories, ASICs), the 1998 aggregate market share in the EEA of NEC and Hitachi never exceed [0-15]%. In those markets Hitachi has a very weak presence with a market share below [0-15]%. The analysis made on the market for DRAMs (see §26) also applies in the neighbouring markets for electronic components. Those markets are characterised by a strong competition between the producers, by a rapid technological evolution and by the presence of major Original Equipment Manufacturers with very strong bargaining power. Consequently, even if the parties were to co-ordinate, the competitive structure of those sectors and the parties' rather low shares of sales make co-ordination of their competitive behaviour not appreciable. Therefore, it is not necessary to establish a causal link between the creation of the JV and the behaviour of the parent companies outside the JV on these closely related markets.

IV. ANCILLARY RESTRICTIONS

A. The notified restrictions

40. The notifying parties have raised four restrictions in the JVA which they consider to be directly related and necessary to the implementation of the concentration
- (a) According to Article 19 of the JVA, Hitachi, NEC and the JV shall have the joint ownership of the new brand used for the DRAMs sold by the JV. It is also provided that Hitachi and NEC shall not use this brand or license it to any third party with regard to other products.
 - (b) According to Article 28 of the JVA, Hitachi and NEC will grant the JV licenses of the intellectual property rights, such as know-how or other technology, that are necessary for the business operation of the JV.
 - (c) According to Article 34 of the JVA, Hitachi and NEC have agreed not to disclose or divulge information from the other party acquired pursuant to the JVA to any third party without the written consent of the respective party.
 - (d) According to Article 41 of the JVA, Hitachi and NEC will comply to the obligation not to compete with the JV in the market for DRAMs.

B. Assessment of the notified restrictions

41. With respect to the four restrictions identified by the notifying parties and described above:
- (a) Restriction on the use by NEC and Hitachi of the common brand: The restriction is directly related and necessary to the implementation of the concentration. As the JV is set up to become an independent entity on a lasting basis, it is essential for its positioning on the market to be identifiable through a brand that shall only be used for the products sold by the JV. It also expresses the reality of the lasting withdrawal of NEC and Hitachi from the market assigned to the JV.

- (b) Licences of the parents' IPR to the JV: This obligation from the parents to licence their IPR is an integral part of the concentration¹¹. Without these licenses the JV would not be in a position to develop the new generation of DRAMs.
- (c) Confidentiality Provisions: The confidentiality clause contained in Article 34 of the JVA is directly related and necessary to the implementation of the concentration.
- (d) Non-Compete provisions: The non-compete provision is directly related and necessary to the implementation of the concentration¹², as long as Hitachi and NEC retain their shareholding in the JV. For this time period, it expresses the reality of the lasting withdrawal of NEC and Hitachi from the market assigned to the JV and prevents NEC and Hitachi from free-riding on the JV's efforts.

V. CONCLUSION

- 42. In their submissions, the parties make various references to future so-called 'toll manufacturing agreements' between the parent companies and the joint venture. However, in the absence of these manufacturing agreements, which are not yet negotiated, the Commission is unable to take a position on their provisions. Therefore, these manufacturing arrangements between the parents and the JV must be regarded as falling outside the scope of this decision under Regulation 4064/89.
- 43. For the above reasons, the Commission has decided not to oppose the notified operation and to declare it compatible with the common market and with the EEA Agreement. This decision is adopted in application of Article 6(1)(b) of Council Regulation (EEC) No 4064/89.

For the Commission,

¹¹ See Commission notice regarding restrictions ancillary to concentrations (OJ C 203, 14.8.1990, p.5), at V.B..

¹² See Commission notice regarding restrictions ancillary to concentrations, at V. A.