

***Case No COMP/M.2439 -
HITACHI /
STMICROELECTRONIC
S / SUPERH JV***

Only the English text is available and authentic.

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

Article 6(1)(b) NON-OPPOSITION
Date: 03/07/2001

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COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 03/07/2001

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 Where possible the information omitted has been replaced by ranges of figures or a general description.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) DECISION

To the notifying parties

Dear Sir/Madam,

Subject: **Case No COMP/M.2439 – Hitachi/STMicroelectronics/SuperH JV**
Notification of 31 May 2001 pursuant to Article 4 of Council Regulation
No 4064/89¹

1. On 31.05.2001, the Commission received a notification of a proposed concentration by which Hitachi, Ltd. (“Hitachi”), Japan and STMicroelectronics N.V. (“ST”), The Netherlands, acquire within the meaning of Article 3(1)(b) of the Council Regulation joint control of a newly created joint venture, SuperH, Inc (“SuperH”), USA.
2. The Commission has concluded that the notified operation falls within the scope of the Merger Regulation and does not raise serious doubts as to its compatibility with the common market.

I. THE PARTIES

3. Hitachi designs, develops, manufactures and markets a wide variety of electronic products, including microcomponents, semiconductors, computers, and consumer products.
4. ST designs, develops, manufactures and markets semiconductors and microcomponents. As such it designs and manufactures integrated circuits that, combined with adequate software running on such circuits, enable its customers to

¹ OJ L 395, 30.12.1989 p. 1; corrigendum OJ L 257 of 21.9.1990, p. 13; Regulation as last amended by Regulation (EC) No 1310/97 (OJ L 180, 9. 7. 1997, p. 1, corrigendum OJ L 40, 13.2.1998, p. 17).

develop and manufacture final products to sell to end-consumers. ST adapts the choice of the microprocessor core, which it uses in semiconductors that are adapted to the requirements of its customers Original Equipment Manufacturers (OEMs). ST is not active in the production of final products to consumers.

5. SuperH is to license and develop the so-called SuperH 4 and subsequent RISC microprocessor architecture cores for embedded system applications to interested third parties.

II. THE OPERATION

6. The joint venture's primary business will be the development and licensing of the SuperH microprocessor core architecture ("SH architecture") for embedded system applications to third parties.
7. The SH architecture is a so-called RISC microprocessor technology based on an original Hitachi architecture. Since 1998, the parties have been jointly promoting the SH4 generation of this architecture and have also developed the so-called SH5 microprocessor core. Through the proposed transaction the development and licensing of SH4 and subsequent upgrades will be transferred to SuperH, which will be the sole legal entity entitled to grant a license of the SH4 microprocessor architecture including the necessary intellectual property rights. SuperH will in addition to licensing the SH architecture to third parties provide ongoing technical support of SH4 and will continue the development of the SH5 and any subsequent SH cores.
8. The SH architecture will be openly licensed to companies in the microprocessor core market such as semiconductor manufacturers and design houses. SuperH will not itself manufacture any product.

III. THE CONCENTRATION

Joint control

9. As a result of the proposed operation Hitachi will hold [50-60%] and ST [40-50%] of the share capital in SuperH.
10. According to the Joint Venture Agreement and the Stockholders' Agreement each of the parent companies will nominate [...] directors to SuperH's board. Hitachi will nominate [...] and ST [...]. The adoption of all board decisions will require the affirmative vote of a majority of the directors including [...]. For significant business decisions the approval of [...] directors is required. Therefore, it can be concluded that both parties will have the ability to veto strategic commercial decisions and thereby will jointly control SuperH.

Full function entity

11. SuperH will be of unlimited duration and, in order for it to operate as an independent entity on the market, it will have its own assets in terms of management, organisation, financial resources and staff. According to the transfer and license agreements entered by the parties, Hitachi and ST will transfer to SuperH, for an unlimited period of time, all the necessary intellectual property

rights to enable the joint venture to perform the envisaged development and licensing of the SH microprocessor core architecture.

12. SuperH will be the sole legal entity entitled to grant a license of the SH4 cores and subsequent cores on the market. Following the operation neither Hitachi nor ST will participate in the development or licensing of such cores. SuperH's income will primarily consist of revenues from the fees and royalties concerned. Part of this revenue will come from the parents, as licensees of SuperH, but most of it will come from other licensees. SuperH will thus perform, on a lasting basis, all the functions of an autonomous economic entity.

IV. COMMUNITY DIMENSION

13. The undertakings concerned have a combined aggregate world-wide turnover of more than EUR 5 billion². Each of Hitachi and ST have a Community-wide turnover in excess of EUR 250 million, but they do not achieve more than two-thirds of their aggregate Community-wide turnover within one and the same Member State. The notified operation therefore has a Community dimension.

V. RELEVANT MARKETS

The joint venture's market

14. The parties have identified the market for development and licensing of RISC microprocessor core architecture as the relevant product market in which SuperH will be active.
15. The parties consider that the RISC (*Reduced Instruction Set Computer*) microprocessor core architecture presents distinctive features *vis-à-vis* the other major category of microprocessor core architecture, the so-called VLIW (*Very Long Instruction Word*) architecture and that no substitutability exists between the two of them. This distinction is made since RISC and VLIW architecture microprocessors differ in terms of number of instructions available for the programmer, the easiness of programming, difference in sale as a stand alone (VLIW) and embedded (RISC) product, the end-applications in which they are used, as well as the cost-effectiveness and energy consumption.
16. The SH technology that SuperH is to license is one of many RISC architecture based microprocessor cores. Other companies licensing RISC microprocessors are *inter alia* MIPS, ARM, ARC, and Tensilica. The parties argue that there is substitutability between different RISC architectures as these architectures can all be used in the same end products. The Commission's market investigation has overall confirmed the parties' proposed market definition. However, according to one respondent the relevant product market should be defined as the market for the development and licensing of all microprocessor cores used in embedded microprocessors, i.e. including both RISC and CISC architecture cores. This respondent considers that the various RISC architectures compete with the CISC

² 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.

("Complex Instruction Set Computing") architecture since RISC and CISC architectures have the same general functionality and are used in similar applications.

17. However, for the purposes of the present transaction, given that the proposed operation does not raise serious doubts irrespective of market definition chosen, the question on how to exactly define the relevant product market can be left open.
18. The parties consider the market for licensing of RISC architecture microprocessor core market to be global (or at least European-wide) since both supply and demand are international in scope; there is a standardisation of the items used by the semiconductors manufacturers which are in the upstream market. In addition there are no specific cultural or linguistic requirements, as well as transportation costs, structural barriers to entry, import tariffs or national regulations or significant variations between the average license prices in the world. The results of the Commission's market investigation have largely confirmed the parties' definition on the relevant geographic market. Irrespective of this, for the purpose of the assessment of the current transaction the relevant geographic market definition can be left open since irrespective of the market definition chosen, no competition concern arise (see further below).

The parents' market and the candidate market for co-ordination

19. The parents to SuperH will continue to be active in markets, which are neighbouring to the market of the joint venture. As such the parties have identified as a candidate market for co-ordination the downstream market for the production and sales of semiconductors, in particular microprocessors, which is a type of semiconductor product. Upstream to this market would be the licensing of microprocessor cores and downstream to the market that the parties have identified as a candidate market for co-ordination would be the design and manufacturing of equipment that uses semiconductors incorporating RISC microprocessors. Hitachi is present on this last market and will remain active on it after the completion of the transaction. On the contrary, ST is not a player in the said market.
20. If the development and licensing of RISC microprocessor core architecture is deemed to be a distinct relevant product market, and the different RISC technologies could be considered substitutable, it would appear more appropriate to define a market for the production and sales of RISC-based microprocessors. In this sense, the results of the Commission's market investigation basically support a narrower definition: the market for the production and sale of semiconductors using RISC microprocessors.
21. According to the information provided by the parties, the RISC architecture microprocessor cores are components used in microprocessors that are integrated into final applications within different user sectors: automotive, computer peripherals, consumer products, industrial products and access infrastructure applications. The parties admit that the RISC microprocessors market could in principle be regarded as narrow as per user sector, but they submit that a definition of the relevant product market per specific final application would be too narrow.
22. The results of the Commission's market investigation do not offer a clear cut view on whether or not it would be possible to define the market for RISC microprocessors according to the end-user sector and/or the final device/application

in which it is to be used. Some respondents agree with the parties' definition, but others support a narrower definition. This latter group of respondents considers that a market segmentation could be made on the basis of parameters such as price, performance of the final application, as well as price capacity or speed of the microprocessors.

23. The parties have argued that the substitutability of the RISC microprocessors in terms of power capacity and speed is more limited than the substitutability assessed in terms of the architecture used. They state that there exists a significant difference between the 32-bit and the 64-bit RISC microprocessors with regard to the performance of the final application. At the same time they argue that these are part of the same product market. The results of the Commission's market investigation partially support the consideration according to which a distinction could be made between 16/32/64-bit RISC microprocessors.
24. With regard to the geographic scope of the market, the parties consider the market to be global (world-wide or at least European) in scope. The Commission's investigation has also indicated that irrespective of the product definition chosen the relevant market is global. However, for the purposes of the present case, since the proposed operation does not give rise to serious doubts irrespective of the market definition chosen the question on how to define the relevant market(s) can be left open.

VI. COMPETITIVE ASSESSMENT

Licensing of RISC architecture cores

25. As a result of the transaction, the parents of SuperH will withdraw from the licensing and development of SH4 and subsequent RISC microprocessor cores. Hitachi will however continue to license SH1-3 architecture cores. ST is not active as a licensor of RISC microprocessor cores.
26. Irrespective of this overlap in the activities of SuperH and Hitachi the Commission's investigation has not revealed that this would lead to any competition concerns. The parties estimate that SH architecture is used in around [less than 10%] of RISC microprocessors world-wide. This should be compared to ARM technology, which the parties estimate to be used in about [70-80%] of RISC microprocessors, and MIPS technology, which is estimated to be used in approximately [5-15%] of RISC microprocessors. In 2000, the parties estimate Hitachi's worldwide market share for the developing and licensing of all microprocessor cores to less than [5%].

Production and development of microprocessors

27. Both Hitachi and ST produce and sell semiconductors using RISC microprocessor cores. However, on the world-wide market for the semiconductors, based on 2000 estimations provided by the parties, Hitachi's share amounts to about [less than 5%]. ST's share is also estimated to less than [5%]. At European level, the parties' combined market share does not exceed [0-10%] (Hitachi's share is estimated to about [0-5%] and ST's to [5-10%]). Even if considering a hypothetical narrower world-wide market for RISC microprocessor cores, the transaction would not lead to any vertically affected market: the parties provide estimations (based on 2000 figures) of approximately [0-5%] share for Hitachi and [0-5%] for ST. In the EEA,

the market shares of the parties would be approximately [less than 5%] and less than [less than 5%], respectively.

28. Even on a narrower market, the European market for 32-bit RISC microprocessors, the parties' estimations, based on 2000 figures, shows that Hitachi's share amounts to [5-15%] and ST's amounts to [0-5%]. As to 64-bit RISC microprocessors, it must be noted that, in 2000, none of the parties were suppliers of these microprocessors to the European market. According to the figures provided by the parties, the leading suppliers in year 2000 of 64-bit microprocessors, at European level, were NEC (30-40%), IDT (25-35%) and PMC-Sierra (20-25%).
29. As to the vertical aspects of the operation, there exists a link between the envisaged activities of SuperH (development and licensing of SH architecture) and the downstream market where the parties are and will remain active (manufacturing and sale of semiconductors using RISC microprocessor cores). However, in the light of the market shares indicated above the present operation will not lead to any vertically affected markets. It should also be noted that none of the respondents to the Commission's market investigation consider the proposed operation to give rise to any competition concern as to the creation or strengthening of a dominant position. On the contrary third parties have argued that the transaction would increase supply alternatives on the RISC architecture core and downstream markets.

Co-operative effects of the joint venture

30. Following the proposed transaction, neither Hitachi nor ST will be licensing SH4 or subsequent architectures, but will remain active on the downstream market for the production and sales of RISC-based microprocessors. This market can thus be considered a candidate market for co-ordination between Hitachi and ST. The parties submit that the proposed operation would not lead to any co-operative effects due to the following reasons:
 - the OEMs have the final decision of which company is going to supply devices (final products into which the microprocessor chip is embedded) based on features, price, quality and volume;
 - given the main goal of the joint venture, the transaction will stimulate competition in SuperH's market and the downstream markets where the semiconductors manufactures and the OEMs are present;
 - none of the parties have significant shares on the markets concerned, which are vigorous and competitive markets;
 - the parties have different semiconductor products and use different manufacturing technologies. An effective co-ordination would require changes that would not be cost-effective in terms of time and effort, particularly since the market for advanced electronics is extremely dynamic.
31. Irrespective of the market definitions chosen, the Commission's market investigation has given no indication that the current transaction would have the object of co-ordinating the competitive behaviour of Hitachi and ST on the market where they are both active or on any closely related markets.

32. Furthermore, the results of the Commission's market investigations clearly points towards the positive effects of the operations *vis-à-vis* competitors and customers : the respondents consider that SuperH will not only stimulate competition in the market for development and licensing of RISC architecture, by creating alternatives to ARM and MIPS technologies, but it will also increase the supply sources of those market players involved in the design and manufacturing of semiconductor products. In addition, it will reinforce the right of choice of the OEMs, which will have access to a wider range of devices and necessary software.
33. The parties had already prior to the current transaction co-operated on the development of the SH architecture and have at the same time competed in the downstream markets. In the light of all of the above-mentioned considerations, it can be concluded that the creation of the joint venture is not likely to significantly alter the incentive and ability of the parties to co-ordinate their competitive behaviour.

VII . CONCLUSION

34. 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