



EUROPEAN COMMISSION

Brussels, 13.7.2011
K (2011) 4928 final

In the published version of this decision, some information has been omitted, pursuant to articles 24 and 25 of Council Regulation (EC) No 659/1999 of 22 March 1999 laying down detailed rules for the application of Article 93 of the EC Treaty, concerning non-disclosure of information covered by professional secrecy. The omissions are shown thus [...].

PUBLIC VERSION

WORKING LANGUAGE

**This document is made available for
information purposes only.**

**Subject: SA 30596 (N 101/2010) – DE – LIP- GLOBALFOUNDRIES Group (Fab
Booster Investment and Fab 1 Annex), Dresden**

Sir,

1. PROCEDURE

- (1) By electronic notification of 15 March 2010 registered at the Commission (SANI/4216) on the same day, the German authorities notified their intention to provide regional investment aid in favour of GLOBALFOUNDRIES Group for diversifying the output of existing establishments in Dresden into new, additional products (so-called Fab Booster Investment). By letters dated 7 and 10 May 2010 the German authorities amended the notification by adding a follow-up project (so-called Fab 1 Annex Investment) of GLOBALFOUNDRIES Group in Dresden for which regional aid is foreseen.
- (2) By letter dated 5 July 2010, the Commission services requested further information for which the German authorities requested an extension of the deadline until 23 August 2010. By letter dated 24 August 2010, the German authorities submitted the information. Additional information was requested by means of letter dated 22 October 2010. After requesting a deadline extension until 10 December 2010, the German authorities submitted the requested information on 10 December 2010. By letter dated 21 January 2011, the Commission services requested further information which was submitted by the German authorities on 3 February 2011. After a meeting that took place on 22 March 2011, the Commission services asked by letter dated 24 March 2011 the German authorities to submit in writing the information and clarifications provided during the meeting. After requiring a deadline extension until 11 May 2011, the German authorities submitted the information on 28 April 2011. Additional information was requested by the Commission services on 11 May 2011 and was provided by the German authorities on 18 May 2011.

Seiner Exzellenz Herrn Dr Guido WESTERWELLE
Bundesminister des Auswärtigen
Werderscher Markt 1
D - 10117 Berlin

2. DESCRIPTION OF THE AID MEASURE

- (3) The German authorities intend to promote regional development, by providing regional investment aid to GLOBALFOUNDRIES Group for providing foundry-services to the semiconductor industry from its plants in Dresden (Sachsen). The investment project comprises 2 sub-projects: diversification of the output of former AMD plants in Dresden into new, additional products (Fab Booster Investment) and extension of capacity of these plants by building an additional plant (Fab 1 Annex).
- (4) The investment will take place in Dresden in the Land Sachsen, which is an assisted area in virtue of Article 107(3)(a) of the TFEU with a standard regional aid ceiling for large enterprises of 30% gross grant equivalent (GGE) according to the German regional aid map¹.

2.1. The beneficiary

- (5) The beneficiary of the aid measure is GLOBALFOUNDRIES Group. The recipients of the aid will be the two owners of the plants: GLOBALFOUNDRIES Dresden Module GmbH & Co. KG and GLOBALFOUNDRIES Dresden Module Two GmbH & Co. KG. The aid recipients are limited partnership companies according to German law with headquarters in Dresden and they are 100% indirectly controlled by the mother company GLOBALFOUNDRIES Inc. (hereinafter "GLOBALFOUNDRIES").
- (6) GLOBALFOUNDRIES Inc. is a joint venture between AMD (Advanced Micro Devices) Inc. and ATIC (Advanced Technology Investment LLC) with headquarters in the USA. GLOBALFOUNDRIES was created in March 2009 and its objective is to provide foundry-services to the semiconductor industry. AMD Inc. (with [...] % shares) and ATIC (with [...] % shares) jointly control GLOBALFOUNDRIES Inc. having [...]. When creating the spin-off joint venture, AMD and ATIC have agreed that the latter can obtain the sole control on GLOBALFOUNDRIES in the future. Nevertheless, the production and supply agreements between AMD and GLOBALFOUNDRIES are hereby not affected. After a capital injection at the end of 2010, ATIC raised its shares to [...] % in GLOBALFOUNDRIES.
- (7) AMD Inc., created in 1969 is a company situated in Sunnyvale (CA), USA. It is a listed producer of integrated circuitry for PCs, networked computers and communication markets with production plants worldwide. ATIC LLC, created in 2008 is an investment company which invests in technology enterprises. It is 100% owned by the Abu Dhabi Emirates (United Arab Emirates). In January 2010, ATIC purchased 100% of Chartered Semiconductor Manufacturing Limited (hereinafter 'Chartered'). At the same time ATIC, Chartered and GLOBALFOUNDRIES signed a business management contract according to which GLOBALFOUNDRIES Inc. will manage the business of Chartered under its name. Chartered has its headquarters in Singapore and is a foundry company for the semiconductor industry. It provides foundry services (*i.e.* producing semiconductor wafers according to client's specifications) and provides also Design Enablement and Technology services.

¹ Commission decision of 8 November 2006 on State aid case N 459/06 - Regional State aid map for Germany 2007-2013 (OJ C 295, 5.12.2006, p. 6).

* Covered by the obligation of professional secrecy.

- (8) As GLOBALFOUNDRIES was created only in March 2009, the German authorities gave the turnover and jobs figures of AMD who ran the two plants in Dresden beforehand. Part of AMD group, the two plants were producing wafers for x86 microprocessors exclusively for AMD Inc. All microprocessors wafers produced in the front-end production in Dresden were shipped to AMD back-end facilities in Asia and from there individual microprocessors were shipped to AMD's customers. Therefore, the turnover reflects the revenue from final individual x86 microprocessors and not the revenue from microprocessors wafers. In 2009 AMD had a turnover of EUR [...]million in the EEA and EUR [...] million outside EEA. In 2009, AMD had 2344 jobs in its plants in Dresden.
- (9) GLOBALFOUNDRIES had revenues of USD 3,5 billion in 2010 from its 12 worldwide locations.²
- (10) The following organisation chart visualises the structure of the GLOBALFOUNDRIES Group (simplified legal structure as of March 31, 2010): [...]

2.2. The investment project

Previous existing projects of AMD in Dresden

- (11) AMD created the site in Dresden in 1995 where it concentrated all of its "front-end" wafer production. The "back-end", the final processing of the completely processed wafers occurred in AMD plants in Asia. The creation and the development of the site in Dresden were supported by regional investment aid in three cases (N 1002/95³, N 522/03⁴ and N 810/06⁵). In the first two cases, the investment of AMD resulted in the construction of two modules (Fab 30 and Fab 36) of a front-end wafer production plant.
- (12) The so-called Fab 30 (for which investment aid was approved in N 1002/95) was set up for the manufacturing of 200 mm wafers for use in microprocessors.
- (13) The so-called Fab 36 (for which regional aid was approved in N 522/03) was established for the purpose of manufacturing microprocessor wafers on the basis of the 65 nm technology and the new following technologies via the use of 300 mm wafers. AMD started the project in October 2003 and ended it in December 2009. According to a final report submitted by the German authorities on 17 February 2011, the total eligible costs amounted to EUR 2,4 billion for which AMD had received EUR 536 million regional aid⁶.

² http://www.globalfoundries.com/about/fast_facts.aspx

³ N 1002/95 was approved by Commission decision of 22 May 1996.

⁴ Commission letter of 3 February 2004 on State aid N 522/2003 – Germany – Large investment aid under the 1998 Multisectoral Framework on regional aid for large investment projects in favour of AMD Fab 36 Limited Liability Company & Co. KG, ref. C(2004)162 fin, OJ C 97, 22.04.2004, p. 10.

⁵ Commission letter of 18 July 2007 on State aid N 810/2006 – Germany – AMD Dresden (MSF 2002), C(2007) 3389, OJ C 246, 20.10.2007, p. 1.

⁶ The Commission approved an aid intensity of 22, 67% gross of the overall eligible costs of AMD for Fab 36. According to the Commission decision N 522/03, the German authorities can grant the last tranche of aid (10%) after the Commission received a final report on the implementation of the project and agreed to

- (14) The Commission approved a third aid measure in favour of AMD (N 810/06) supporting 1) the conversion of the production technology in Fab 30 from 200 mm to 300 mm technology, 2) the extension of the capacity of Fab 36, and 3) the construction of a "bumping-and-sorting" facility in which the chips are equipped with electronic contacts. AMD started all three sub-projects in the 2nd and 3rd quarter of 2006 but they are not yet totally finalized. The Commission approved an aid amounting to EUR 262, 4 million (present value) for eligible costs of EUR 2, 2 billion (present value) (resulting in an aid intensity of 11, 9 % GGE).
- (15) Fab 30 and Fab 36 were producing front-end microprocessor wafers exclusively for AMD Inc. These processed wafers were used in x86 microprocessors for computers. All microprocessors wafers produced in the front-end production in Dresden were shipped to AMD back-end facilities in Asia and from there individual microprocessors were shipped to AMD's customers. The capacity of the two plants in Dresden was planned to reach 540 000 wafers p.a (300mm equivalent) by the end of the projects.
- (16) In November 2008, the German authorities notified changes in the ownership structure of AMD and in the business concept of Fab 30 and Fab 36. According to the German authorities the AMD microprocessor production facilities in Dresden (*i.e.* Fab 30 and Fab 36) and activities regarding process technology development at the Dresden site were about to be outsourced to a jointly controlled joint-venture (called at that time Foundry Co and now GLOBALFOUNDRIES). Furthermore, without any additional investment the new owner of the two fabs in Dresden (Foundry Co) intended to produce microprocessor wafers not only for AMD group but to perform contract manufacturing of microprocessor wafers (some [...] % of its manufacturing capacities) as a "foundry" on behalf and according to specifications of other companies outside AMD group. On 19 January 2009, the Commission concluded in its decision N 575/2008⁷ that the notified amendments do not affect the positive opinion that the Commission has expressed in its decisions N 522/03 and N 810/06.

The new investment projects of GLOBALFOUNDRIES in Dresden

- (17) GLOBALFOUNDRIES intends to change the business model of the existing AMD fabs in Dresden to start functioning as a foundry service provider for the semiconductor industry *i.e.* producing wafers⁸ according to the specifications of the client who will sell the chips under its own brand. To be able to provide these foundry services, GLOBALFOUNDRIES will need to invest to adapt the current fabs to the new business model. As a result, new machines and equipment need to be purchased on which a wider range of process technologies⁹ will be introduced. The production capacity needs

the payment of this last tranche. On the basis of the final report submitted on 17 February 2011, the Commission services agreed to the payment of the last tranche of aid.

⁷ Commission letter of 19.1.2009 on State aid N 575/2008 – Germany – Amendments to State aid N 810/06 – Germany AMD Dresden (MSF 2002) and N 522/03 - Germany AMD Fab 36 (MSF 1998), C(2009) 250, OJ C 91, 21.4.2009, p. 1.

⁸ A semiconductor wafer is a silicon-based carrier in size of 200 mm or 300 mm.

⁹ A process technology specifies the manufacturing process for a wafer and thus determines the wafer's target application in an end product, such as, for example, a microprocessor for a computer. Process technologies

to be accordingly extended. Furthermore, the new capacities must be flexible enough to adapt the production process easily to the specifications of the clients.

- (18) As a foundry, GLOBALFOUNDRIES will be able to manufacture semiconductor wafers for a wide variety of semiconductor devices (e.g. chips for the mobile communication, memory chips, integrated circuits and systems etc) for various end applications (e.g. smartphones, portable consumer devices, mobile gaming etc) based on the latest process and production technologies for 300 mm wafer with a structure size below 65 nm and with different technological specifications (Super High Performance, High Performance, Low Power, Super Low Power, General Purpose).
- (19) The Fab Booster Investment project will lead to an additional capacity of 156 000 processed wafers per year. In the Fab 1 Annex project, a new building will be constructed and a further capacity for the production of 264 000 processed wafers per year will be created. Thus, the total processed wafer production capacity of the Dresdner Fabs' will be increased from the current 540 000 per year to 960 000 wafers per year by the end of 2013.¹⁰

Timing of the GLOBALFOUNDRIES investment project in Dresden

- (20) The works on the Fab Booster Investment started in the fourth quarter of 2009. The timeline of the two sub-projects is represented in the table below:

Projects in Dresden	Start of project	Start of production	End of project	Full production
Fab Booster Investment	Q4/09	Q3/10	Q4/13	Q4/13
Fab 1 Annex	Q2/10	Q4/11	Q1/12	Q2/12

2.3. Form of aid and legal basis

- (21) GLOBALFOUNDRIES is to receive aid in form of an investment premium and a direct grant.
- (22) The investment premium is to be granted on the basis of the "Investitionszulagengesetz 2007" and its successor scheme "Investitionszulagengesetz 2010" (hereinafter referred to as "IZ schemes"). The direct grant is based on the "36. Rahmenplan der Gemeinschaftsaufgabe - Verbesserung der regionalen Wirtschaftsstruktur" (hereinafter referred to as "GA scheme").
- (23) The German authorities submitted a summary of the IZ scheme 2007 and the GA scheme in conformity with Article 8 of the Block Exemption Regulation for regional investment aid.¹¹ For the IZ scheme 2010, the German authorities submitted a summary in conformity with Article 9 of the General block exemption Regulation.¹²

are defined through structural sizes and performance characteristics, such as e.g., 45 nm Super High Performance, 28 nm Super Low Power, 40 nm General Performance, etc

¹⁰ The capacity is measured in 300mm wafer equivalent.

¹¹ The summary of the "Investitionszulagengesetz 2007" was registered at the Commission under XR 6/07 (OJ C 41, 24.2.2007, p. 9). The summary of the "36. Rahmenplan der Gemeinschaftsaufgabe - Verbesserung der

2.4. Eligible cost of the project

(24) The investment costs of Fab Booster Investment project amount to EUR 679 800 000 out of which only EUR 677 800 000 are eligible for aid. Fab 1 Annex investment costs amount to 1,3 billion all of which is eligible for aid. The eligible costs of the two sub-projects amount to EUR 1,99 billion in nominal value.

(25) The table below gives an overview of the total eligible costs.

Eligible costs (in EUR)	2009	2010	2011	2012	2013	Total
Fab Booster Investment	1 500 000	324 400 000	206 900 000	7 500 000	137 500 000	677 800 000
Fab 1 Annex	0	29 104 000	1 259 182 000	24 000 000	0	1 312 286 000
Total	1 500 000	353 504 000	1 466 082 000	31 500 000	137 500 000	1 990 086 000

(26) The German authorities claim that no replacement investment is involved in the diversification of Fab 30 and Fab 36 into new, additional products, namely the production of processed wafers for the semiconductor industry on the basis of specifications of the client, in other words, foundry services. GLOBALFOUNDRIES changed the business model of the AMD plants and will manufacture processed wafers as a form of foundry service also to other clients than AMD. In order to be able to do this, GLOBALFOUNDRIES will diversify the output and extend the capacity of the Fab 30 and Fab 36 plants and at the same time it will build a new plant.

(27) The German authorities confirmed that no aid will be requested for used equipment, as all eligible costs concern new assets.

(28) Germany confirmed that the immaterial assets will not be eligible for regional aid.

2.5. Financing of the investment

(29) The table below gives an overview of the financing of the investment:

Financing of the investments (nominal, in EUR Mio.)	
Fab Booster Investment	
Internal Resources	596
Aid amount	83,8
Fab 1 Annex	
Internal Resources	335,435
Aid amount	136,852
Loan (not backed with a state guarantee)	840
Total	1992

regionalen Wirtschaftsstruktur" was registered at the Commission under XR 31/07 (OJ C 102, 5.5.2007, p. 11).

¹² Registered at the Commission under X 167/08 (OJ C 280, 20.11.2009, p. 5).

- (30) From the table above, it can be concluded that the beneficiary will make a contribution of at least 25% of the total eligible expenditure of EUR 1, 99 billion which will be free of any public support.

2.6. Aid amount

- (31) The German authorities intend to grant a nominal aid amount of EUR 83, 5 million for the Fab Booster Investment and EUR 136, 8 million for the Fab 1 Annex investment.
- (32) The notification states that the aid for the project will not be cumulated with aid received for the same eligible costs from other local, regional, national or Community sources.
- (33) The German authorities confirmed that no aid will be paid out before approval of the notified aid measure by the Commission (this is also required by the applied legal basis).
- (34) Moreover, the German authorities confirmed that the beneficiary applied for the aid before works on the project started.
- (35) In addition, the aid is granted under the condition that the beneficiary will maintain the investments in the assisted region for a minimum period of five years.

2.7. General provisions

- (36) The German authorities have committed to submit to the Commission:
- within two months of granting the aid, a copy of the signed aid contract between the granting authority and the beneficiary;
 - within six months after payment of the last tranche of the aid, based on the notified payment schedule, a detailed final report.

3. ASSESSMENT OF THE AID MEASURE AND COMPATIBILITY

3.1. Existence of aid

- (37) The financial support will be granted by the German authorities in application of the aid schemes "Improvement of the regional economic structure" and "Investment premium Law 2007 and 2010". The support can thus be considered as given by the Member State and through State resources within the meaning of Article 107 (1) of the TFEU.
- (38) As the aid is granted to a single company, GLOBALFOUNDRIES, the measure is selective.
- (39) The financial support given to GLOBALFOUNDRIES will relieve the company from costs which it normally would have had to bear itself and therefore the company benefits from an economic advantage over its competitors.
- (40) The financial support from the German authorities will be given for an investment resulting in the production of wafers for the semiconductor industry. Since the products

concerned are subject to trade between Member States, the support given is likely to affect trade between Member States.

- (41) The favouring of GLOBALFOUNDRIES and its production by the German authorities means that competition is distorted or threatened to be distorted.
- (42) Consequently, the Commission considers that the notified measure constitutes State aid to GLOBALFOUNDRIES within the meaning of Article 107(1) of the TFEU.

3.2. Legality and compatibility of the aid measure

- (43) By notifying the planned aid measure before putting it into effect, the German authorities respected their obligations under Article 108(3) TFEU and the individual notification requirement expressed in Article 7(e) of the Block Exemption Regulation for regional aid, and in Article 6(2) of the General Block Exemption Regulation.
- (44) Having established that the measure involves state aid within the meaning of Article 107(1) TFEU, it is necessary to consider whether the above mentioned measure can be found compatible with the internal market. As the measure relates to a regional investment aid, the Commission assessed it on the basis of the RAG 2007, and, more specifically, the provisions of section 4.3 of the RAG 2007 relating to large investment projects.

3.3. Compatibility with the general provisions of the RAG 2007

- (45) The aid is granted on the basis of, and in conformity with, the provisions of the above mentioned block-exempted aid schemes which respect the general compatibility criteria of the RAG 2007.
- (46) In particular, the project comprises an initial investment within the meaning of the RAG 2007 as it concerns the diversification and extension of an existing establishment for the production of new, additional products. GLOBALFOUNDRIES needs to introduce new process technologies and production processes in order to provide foundry service to semiconductor companies (meaning manufacturing processed wafers for their clients who will sell them under their own brand). The existing plants were focused on AMD microprocessors wafers for x86 computer devices. With the new business strategy and investments (Fab Booster Investment and Fab 1 Annex investment) GLOBALFOUNDRIES aims at adapting the existing facilities in Dresden to make them flexible to cover all types of semiconductor processed wafers (*e.g.* 1) micro- and graphic processors, 2) memory chips (eg SRAM, Flash/EEPROM), 3) chips for the mobile communication and 4) integrated circuits and systems (ASSP, PLD, ASIC). At the same time, GLOBALFOUNDRIES will extend the existing capacities of the two existing fabs (Fab 30 and 36) and will create a new fab (by means of the investment project Fab 1 Annex). Thus, the two sub-projects constitute initial investments in the meaning of point 34 of the RAG 2007.
- (47) The costs eligible for investment aid are defined in line with the RAG 2007, and the rules on cumulation are respected.
- (48) In compliance with point 38 of the RAG 2007, the beneficiary applied for aid for Fab 1 Annex on 29 April 2010 and the authority responsible for administering the GA-scheme

confirmed in writing on 28 May 2010 that Fab 1 Annex project meets the conditions of eligibility before the start of works (4 June 2010).¹³

- (49) GLOBALFOUNDRIES also has the obligation to maintain the investment in the region for a minimum of five years after completion of the project (point 40 of the RAG 2007). The beneficiary provides a financial contribution of at least 25% of the eligible costs in a form which is free of any public support (see table in paragraph (29) above) (point 39 of the RAG 2007).
- (50) The Commission therefore considers that the aid complies with the standard compatibility criteria laid down in the RAG 2007.

3.4. Compatibility with the aid to large investment projects

3.4.1. Single investment project

- (51) Point 60 of the RAG 2007 states that in order to prevent that a large investment project is artificially divided into sub-projects to escape the provisions of these guidelines, such a project will be considered as a single investment project (hereafter “SIP”) when the initial investment is undertaken in a period of three years and consists of fixed assets combined in an economically indivisible way.
- (52) The notified sub-projects started in the fourth quarter of 2009 (Fab Booster Investment) and the second quarter of 2010 (Fab 1 Annex). The previous AMD projects started in 2003 and the second quarter of 2006 (see N 522/03 and N 810/06 and points (13) and (14) above). Being outside the three-years rule, there is no need to take a position whether the notified sub-projects constitute a single investment project with the previous AMD projects in Dresden.
- (53) However, the German authorities cannot exclude that the two notified sub-projects could form a single investment project in the meaning of point 60 of the RAG 2007 and limited the aid intensity for the second sub-project (Fab 1 Annex) to 10, 2% GGE. Given that the two sub-projects- Fab Booster Investment and Fab 1 Annex - were undertaken within a period of three years, and considering their immediate geographic proximity and possible functional and strategic links, they might have to be considered and assessed as a SIP in the meaning of point 60 of the RAG 2007.
- (54) Since the German authorities have explicitly accepted in the notification of the present case that the two sub-projects could be considered as a SIP in the meaning of point 60 of the RAG 2007, there is no need to investigate the matter further (see section 3.4.2 below).

3.4.2. Compatibility with the rules regarding the maximum aid intensity (point 67 of the RAG 2007)

- (55) The German authorities intend to grant a nominal aid amount of EUR 83, 5 million (discounted value EUR 80 042 044) for the Fab Booster Investment and EUR 136, 8

¹³ Point 38 of the RAG is applicable only to the part of the aid that is granted on the basis of the GA scheme as the rest is granted on the basis of a fiscal measure (IZ schemes). Fab Booster Investment project will be financed from the IZ scheme.

million (discounted value EUR 130 933 132) for the Fab 1 Annex Investment. The eligible costs of Fab Booster Investment amount to a nominal value of EUR 677 836 750 (discounted value EUR 664 137 692) and those of Fab 1 Annex Investment to a nominal value of EUR 1 312 286 000 (discounted value EUR 1 283 658 000). Thus, the aid intensity calculated as gross grant equivalent (GGE) amounts to 12, 05% for Fab Booster Investment and to 10, 20 % for Fab 1 Annex Investment.¹⁴

- (56) Total planned eligible costs for the two sub-projects amount to EUR 1, 99 billion in nominal value and EUR 1, 94 billion in present value. The planned total aid amounts to EUR 220,3 million in nominal value and EUR 210,9 million in present value. Consequently, the applied aid intensity for the combined project is 10, 83% GGE.
- (57) Given that the present (discounted) eligible expenditure is EUR 1 947 795 858 and the applicable standard regional aid ceiling is 30%, the adjusted maximum aid intensity following point 67 of the RAG 2007 is 10, 83% GGE (resulting in a total aid amount of EUR 210 975 177 million in present value).
- (58) Since the combined aid intensity for the two-subprojects respects the maximum aid intensity allowed under the scaling down mechanism of the RAG 2007 for these projects, the notified aid intensities for the two sub-projects (12, 05% GGE for Fab Booster Investment and 10, 20% GGE for Fab 1 Annex Investment) do comply with the RAG 2007.
- (59) The German authorities confirmed that the maximum aid amount approved in this decision (EUR 80 042 044 in discounted value for Fab Booster Investment and EUR 130 933 132 discounted value for Fab 1 Annex Investment) and the maximum aid intensities approved in this decision (12, 05% GGE for Fab Booster Investment and 10, 20% GGE for Fab 1 Annex Investment) will not be exceeded in case of a change in the eligible costs of the investment projects.

3.4.3. Compatibility with the tests under point 68 of the RAG 2007

- (60) The Commission's assessment of the compatibility of regional aid to large investment projects with point 68 of the RAG 2007 depends on the market shares of the beneficiary before and after the investment and on the capacity created by the investment if the market is underperforming. To carry out the relevant tests under point 68(a) and (b) of the RAG 2007, the Commission has first to establish the appropriate product and geographic market definitions.

3.4.3.1. Product concerned

- (61) According to point 69 of the RAG 2007, the product concerned is normally the product covered by the investment project.
- (62) As a foundry, GLOBALFOUNDRIES can manufacture semiconductor wafers¹⁵ for a wide variety of semiconductor devices (e.g. chips for the mobile communication,

¹⁴ The amounts have been discounted to the date of notification (March 2010) and taking into account the discount rate applicable at that time (base rate of 1, 24% on top of which 100 basis points need to be added, according to the Commission Communication on reference rate, OJ C 14, 19.1.2008, p.6).

¹⁵ See footnote 8.

memory chips, integrated circuits and systems etc) for various end applications (e.g. smartphones, portable consumer devices, mobile gaming etc) based on the latest process and production technologies for 300 mm wafer with a structure size below 65 nm and with different technological specifications (Super High Performance, High Performance, Low Power, Super Low Power, General Purpose). These foundry services that are materialised in all sorts of semiconductor wafers belong to CPA-Code Nomenclature 26.11.3 (electronic integrated circuits). When a foundry produces a semiconductor wafer, already with the first production steps, it has been established which specific semiconductor device will be produced.

- (63) The Commission preliminary concludes that the product concerned by the investment projects is the semiconductor processed wafer that is contract-manufactured according to the specifications of the client (*i.e.* foundry services).
- (64) For the moment, AMD is the biggest client of GLOBALFOUNDRIES. By the end of the investment projects, [...] % of total capacity (960 000 wafers per year) will be delivered to AMD. The two companies have a long-term contract (over 10 years) for the supply of microprocessor wafers with x86 architecture for computers. According to the German authorities, AMD will not receive products resulting from the notified investments, as it will be supplied with microprocessors wafers for computers only from the existing capacity in Fab 30 and Fab 36. Furthermore, the German authorities explain that this supply contract is covered by the existing Commission decisions (*i.e.* N 522/2003, N 810/2006, N 575/2008). Based on this confirmation, the Commission concludes that AMD may not benefit from the notified subsidised production of semiconductor wafers. In this context, there is no need to consider the downstream product as required by point 69 of the RAG 2007 for the purpose of this decision.
- (65) Following the above, the Commission will regard for the further compatibility assessment of this measure the production of semiconductor processed wafers contract-manufactured according to the specifications of the client (*i.e.* foundry services).

Relevant product market

- (66) The Commission has to assess to which relevant market the relevant products belong by taking into account possible relevant supply- and demand-side substitutability. Point 69 of the RAG 2007 stipulates that the relevant market includes the product concerned and its substitutes considered to be such either by the consumer (by reason of the product's characteristics, prices and intended use) or by the producer (through flexibility of the production installations).
- (67) The German authorities consider that the relevant product market is the foundry service market without any further segmentation depending on the end application of the wafer. In support of this statement, the German authorities submitted two relevant market studies (IC Insight and McClean Report 2010).
- (68) The semiconductor wafers are silicon carrier materials for chips. The production of the processed wafers takes place in the front-end fabs and this stage makes up the predominant part (ca 90%) of the value creation chain of the actual semiconductor product. In a second step the individual chips are removed from the wafers (by sawing) and assembled in the "back end" fabs. Foundries are buying the raw material (non-processed semiconductor wafers) and imprint or process these "raw" wafers according to customer specifications. There is no market for processed wafers, as a foundry

provider starts the production of processed wafer only after it has an order from its client and already with the first production steps it is established which semiconductor product will be produced. However, a foundry service market where foundries produce custom-made wafers exists.

- (69) The main providers of foundry services are the pure-play foundries and the mixed IDM (integrated device manufactures). The pure-play foundries like TSMC, UMC and GLOBALFOUNDRIES (after AMD will step out from the JV) produce semiconductor wafers only for their customers. IDM foundries on the other hand, produce wafer semiconductors for their own use and provide also foundry services. The main customers for foundry services are the Fabless and Fablight companies. A Fabless semiconductor company does not have production capacities for wafers and relies on the foundry companies. A fabless company concentrates more on the technology and distribution (e.g. Broadcom, Qualcomm, Nvidia, Media Tek and now AMD after the sale of its fabs in Dresden). A Fablight semiconductor company produces wafers but also buys foundry services in order to cover the demand of their chips (e.g. STMicroelectronics, NXP, Freescale).
- (70) GLOBALFOUNDRIES is a digital pure-play foundry. According to McClean Report for 2010, the pure-play foundries are classified in three categories: the big 5 (TSMC, UMC, Chartered, SMIC and GLOBALFOUNDRIES-which purchased Chartered); the "bubble foundries" (2nd tier foundries) (Dongbu, HHNEC, Grace, He Jian, Silterra, Mosel-Vitelec) and the speciality foundries (Vanguard, Tower, SSMC, X-Fab, ASMC, Polar, WIN- GaAs, L-Foundry, or Telefunken). The revenues of the big 5 pure-play foundries during 2007-2009 represented more than 80% of foundry sales during that period.¹⁶ In addition, the last category (*i.e.* speciality foundries) is not attempting to go head-to-head with the big 5 foundries with regards to advanced technology or the capacity volume.¹⁷
- (71) Besides the three categories of pure-play foundries described above, the submitted studies provide market data for pure-play foundry sales by application: computers, telecom, consumer, others. Therefore, there is a need to analyse whether the foundry market can be segmented according to the end application of the wafers.
- (72) From the supply side, foundries are defined as having flexible production facilities to be able to manufacture all sorts of wafers depending on the demand. On this basis, it seems that there is *supply--side substitutability* between different types of processed wafers.
- (73) From the consumer perspective, Fabless and Fablight companies can choose the provider of the foundry service. However, demand side substitutability is limited due to the fact that once fabless companies have chosen a pure-play foundry as supplier and have entered into a wafer supply contract it is costly to change the foundry provider.
- (74) In view of the features of the foundry market and for the purpose of this decision, it is not relevant to further segment the foundry market according to the end application of the processed wafer.

¹⁶ 80% in 2007, 81% in 2008 and 84% in 2009, see figure 3-16 of McClean Report 2010 Edition. In 2009, TSMC had 47% market shares based on revenues, UMC 15% and Globalfoundries (together with Chartered) had 13%.

¹⁷ McClean Report 2010 Edition, p. 3-20, 3-21 and figure 3-18.

- (75) For the purpose of this decision, the relevant product market of foundry wafers is the market for semiconductor foundry services with its main players, the pure-play foundries and the mixed IDM.

Relevant geographic market

- (76) The German authorities assume that the relevant geographic market for the purpose of the assessment of point 68 is the worldwide market because foundry services are provided throughout the world. Both producers and consumers of semiconductor wafers are located worldwide. Moreover, worldwide transport costs only play a minor role in the total manufacturing costs.
- (77) The Commission has no reason to doubt that the arguments of the German authorities regarding the geographic market for semiconductor wafers are valid. Moreover, in its decision of 29 January 2004 on State aid in favour of AMD Fab 36¹⁸ the Commission considered the geographic market for microprocessors to be worldwide. Also, in Commission merger decisions¹⁹ in the semiconductor sector, the geographic market was defined to be worldwide.
- (78) **On the basis of the above, and for the purpose of this decision, the Commission considers that the relevant market for the products concerned is worldwide.**

Market shares

- (79) To examine whether the project is compatible with point 68(a) of the RAG 2007, the Commission has to analyse the market share of the aid beneficiary before and after the investment.
- (80) The beneficiary's market share is assessed at group level (i.e including the sales of Chartered) in the relevant product and geographic market. As the two sub-projects of GLOBALFOUNDRIES start and reach full production in different years, the Commission will thus examine the market share of GLOBALFOUNDRIES on the relevant market as described above in 2008, 2009 and 2013 and 2014.
- (81) The German authorities first provided independent forecasts by a market research institute (IC-Insights – "The McLean report 2009 and 2010 Edition") for the evolution of foundry sales (pure-play and IDM foundries) in the total relevant product market. The German authorities calculated the market shares of GLOBALFOUNDRIES only on the pure-play foundry market as this is the narrowest foundry market (without the sales of the IDMs). Furthermore, the German authorities considered also the new capacity that GLOBALFOUNDRIES will bring on the market by 2012 (504 000 wafer p.a) with its investment in New York State (US) and the capacity of Chartered. According to the calculation of the German authorities, the market shares of GLOBALFOUNDRIES remain below [15-20]% before and after the investment (in 2013 GLOBALFOUNDRIES reaches market shares of [15-20]% (value terms)/[15-20] %

¹⁸ State aid N 522/2003- Germany – Large investment aid in favour of AMD Fab 36 LLC & Co. KG – 1998 MSF.

¹⁹ Commission decision of 03.07.2001, case COMP/M.2439 Hitachi/STMicroelectronics/SuperH. Commission decision of 23.06.1999, case COMP/M.1492 Hyundai Electronics/LG Semicon. Commission decision of 21.12.2000, case COMP/M.2230 Sanmina/Siemens/Inboard.

(volume terms); in 2014 a market share of [15-20]% (value terms)/ [15-20]% (volume terms) is forecasted), on the pure-play foundry market.

- (82) The Commission notes that by calculating the market shares only by taking into account the pure-play foundry sales, it is the worst case scenario for GLOBALFOUNDRIES (by considering also the IDM sales, the market shares of GLOBALFOUNDRIES will be lower).
- (83) The Commission verified the calculation provided by the German authorities and concludes that GLOBALFOUNDRIES market shares on the foundry market are below 25% before and after the investment. Thus, the threshold laid down in point 68 (a) of the RAG 2007 is respected.

Production capacity

- (84) The Commission also has to examine whether the investment project complies with point 68(b) of the RAG 2007. It needs to verify whether the capacity created by the project is less than 5% of the size of the market measured using apparent consumption data of the product concerned, unless the average annual growth rate of its apparent consumption over the last five years is above the average annual growth rate of the EEA's GDP.
- (85) The aim of this test is to identify situations, where a major aided investment addresses a market characterized by overcapacities or under-average growth since in these situations European competitors might be crowded out.
- (86) The new capacity (420 000 p.a) to be created in Dresden will be below 5% of the worldwide sales in 2008 (9 517 000 pure-play foundry wafers).
- (87) According to Germany, there exists no direct data on the apparent consumption of foundry wafers in the EEA, as both the suppliers and consumers are located worldwide and mainly outside Europe. The Commission practice in this situation is to look at the growth pattern of the downstream product or end product in the EEA.
- (88) The German authorities propose to use as a proxy for the consumption of foundry services the apparent consumptions of computers (PCs and servers) in the EEA. This CAGR was 13, 25% during 2004-2009 (in volume term). However, PCs are only one of the possible uses of foundry wafers produced at the aided facilities. It is thus not possible to conclude from data on evolution of the apparent consumption of computers in the EEA on the evolution of the apparent consumption of foundry wafers in the EEA. Hence, the growth of the apparent consumption of foundry wafers for the EEA can not be approximated with the data submitted by the German authorities.
- (89) Another possible alternative for a downstream product as a proxy for the product concerned in this case is the semiconductor market. The apparent consumption of the semiconductor market in the EEA (CAGR 3, 4%) was below the apparent consumption of the EEA GDP (CAGR 4, 3%) over 2003-2008 (in value terms). However, the Commission considers that the growth of the semiconductor market (or electronics market) is not an alternative proxy, as there is limited growth relationship between the growth of foundry market and that of the semiconductor market. The foundry market (merchant market) is developing much faster than the downstream

semiconductor market, since the captive production by Integrated Device Manufacturers is growing slower or shrinking. The success of fabless companies as well as the movement to more outsourcing by IDM has fuelled strong growth in the foundry sales since 1998. The most recent example of an IDM outsourcing its wafer production is AMD with the creation of the spin-off JV GLOBALFOUNDRIES, as it was considered very costly and risky for AMD to maintain the production facilities in Dresden.

- (90) Another proxy put forward by the German authorities and which might be relevant for the growth of the apparent consumption of foundry wafers is the growth of fabless companies which are the main buyers of foundry services. On the basis of the available studies, there is a close growth relationship between the growth of foundries and that of fabless companies, as the latter do not have production facilities for semiconductor wafers (such as Qualcomm, Nvidia, Media Tek and now AMD after the sale of its wafer fabs) and rely entirely on foundries. In 2008 and 2009, around 70% of the pure-play foundry sales were provided to fabless companies out of which only 9% to European production facilities (fabless and fablight companies).²⁰
- (91) However, there is no data available for the EEA, as the majority of fabless companies are located outside Europe (mainly in the United States, Japan, South Korea, and Taiwan). From the list released by IC Insight on the top 50 fabless companies, only two have the headquarters in Europe (i.e. CSR and Dialog). For example, in 2007 the sales of the two companies accounted for 2,47% of the top 50 fabless sales, whereas in 2008 and 2009 this percentage decreased to 2,18% and respectively 1, 93% as the total top 50 fabless sales increased in those years.
- (92) Thus, productive capacity of foundry wafers in Europe has to be put in the context of worldwide competition where the productive capacity in Europe represents only a small share of the worldwide production capacity. In this respect, the investment of GLOBALFOUNDRIES in Dresden is not of a larger order of magnitude than its other investments in New York State and in the future the one in Abu Dhabi.
- (93) The CAGR of the pure-play foundry services reached 3% over the period 2004-2009 at worldwide level. However, it is interesting to note that over the 6 years, the foundry market grew no more than 2% in four of those years (2005, 2007, 2008, 2009) but 21% and 45% in the other two (2006 and 2004). It appears that it is a very volatile business²¹. From 2009 through 2014, pure-play foundry sales are expected to display a 14% CAGR, three points better than total IC industry CAGR expected during the same timeframe.
- (94) The CAGR of the worldwide fabless sales was 15, 3% during 2003-2008 and 6, 9% during 2004-2009.²² IC Insights forecasts that, in 2014, fabless IC companies will command about 27-30% of the total IC market²³.

²⁰ McClean Report 2010. From information on internet: in 2006 13% of worldwide foundries services were sold to Europe- 10% to fabless companies and 3% to fablight.

²¹ During the crisis the foundry market dropped with 30% in 2008 and 75% in Q2 in 2009.

²² Fabless IC suppliers represented over 14% of worldwide IC sales in 2004 and increased to 20, 4% in 2009. IC sales refer to the sales of fabless companies (such as Qualcomm, Nvidia, Media Tek and now AMD) and those of IDM (such as IBM, Samsung, STMicroelectronics, NXP, Nvidia)

²³ McClean Report 2010 Edition

- (95) Hence, services to Fabless companies do most likely not represent a declining or an underperforming market at worldwide level. As the European consumption of foundry wafers represent only a small part of the worldwide consumption, it can be presumed that in the EEA the foundry market is not a market in a decline or underperforming.
- (96) GLOBALFOUNDRIES is the first pure-play digital foundry with production facilities in Europe that figures in the top 5 pure-play foundries (see point (70) above). The other foundry providers which have production facilities in Europe are X-Fab, L Foundry, Telefunken and Altis. These are niche (specialised) foundries (e.g. X-Fab and L Foundry are analogue and mixed-signal foundries) and are not directly competing with GLOBALFOUNDRIES. For example, X-Fab which figures in top 50 foundries in McClean Report is unlike typical foundries because of its specialized expertise in advanced analogue and mixed-signal process technologies which are not intended for digital applications but rather for analog applications that can be integrated with additional functions (such as high voltage, non-volatile memory or sensors).²⁴ These potential European competitors are located mainly in Germany (X-Fab is located in Erfurt next to Dresden) and one in France.
- (97) Overall, as GLOBALFOUNDRIES is the only worldwide significant foundry with productive capacity in Europe, its investments in Europe cannot crowd out incentives of existing competitors with production capacity in Europe. Moreover, there exists no major project for building production facilities in Europe by players who are not already producing in Europe.
- (98) In view of the above, it is unlikely that the investments of GLOBALFOUNDRIES in Dresden will thus crowd out its potential competitors in Europe.
- (99) The threshold of 5% laid down in point 68 b) of the RAG is not exceeded. Furthermore, based on the worldwide growth of the foundries (CAGR 3%) and fabless companies during 2003-2008 (CAGR 15, 3%) and expected growth for the next 6 years (CAGR of foundries 14% and fabless sales will represent 30% of IC sales in 2014), one could presume that foundry services do most likely not represent a declining market or an under-average performing market either at worldwide or at EEA level.
- (100) It can be concluded that the threshold laid down in point 68 b) of the RAG is not exceeded.

3.5. Conclusion

- (101) The aid for the notified projects is in line with the general provisions of the RAG 2007 and respects the conditions of a large investment project as defined therein. Consequently, the aid measure is compatible with Article 107(3)(a) of the TFEU.

4. DECISION

The Commission has decided, on the basis of the foregoing assessment, that the regional aid in favour of GLOBALFOUNDRIES is compatible with the TFEU.

The Commission reminds the German authorities of their commitment to submit to the Commission a copy of the aid contract, as well as a final report concerning the measure in question.

²⁴ Information available on the website of X-fab, www.xfab.com.

If this letter contains confidential information which should not be disclosed to third parties, please inform the Commission within fifteen working days of the date of receipt. If the Commission does not receive a reasoned request by that deadline, you will be deemed to agree to the disclosure to third parties and to the publication of the full text of the letter in the authentic language on the Internet site: http://ec.europa.eu/eu_law/state_aids/state_aids_texts_en.htm

Your request should be sent by registered letter or fax to:

European Commission
Directorate-General for Competition
State Aid Greffe
B-1049 Brussels
Fax No: 32 2 296 12 42

Yours faithfully,

For the Commission
Joaquín ALMUNIA
Vice President of the Commission