

**New York State Department of Taxation and Finance**  
**Office of Tax Policy Analysis**  
**Technical Services Division**

TSB-A-04(10)C  
Corporation Tax  
May 24, 2004

STATE OF NEW YORK  
COMMISSIONER OF TAXATION AND FINANCE

ADVISORY OPINION

PETITION NO. C031229B

On December 29, 2003, a Petition for Advisory Opinion was received from Standard Microsystems Corporation, c/o Weiser LLP, David Schmutter, CPA, Esq., 3000 Marcus Avenue, Lake Success, New York 11042.

The issue raised by Petitioner, Standard Microsystems Corporation, is whether its Manufacturing Production Test Process, as described below, constitutes the production of goods by manufacturing, processing or assembling for purposes of the investment tax credit under section 210.12 of the Tax Law.

Petitioner submits the following facts as the basis for this Advisory Opinion.

Petitioner is a worldwide designer, manufacturer and supplier of semiconductors for the personal computer, peripherals and embedded systems marketplaces. It sells its products to a worldwide customer base, which includes most of the world's leading personal computer manufacturers. Petitioner's semiconductors reside on the motherboards of personal computer products sold by personal computer manufacturers.

Petitioner is headquartered in Hauppauge, New York and has operations in North America, Taiwan, Europe, China, Korea and Japan. Its facilities are staffed with highly skilled design, product and test engineers, as well as other semiconductor experts. Increasingly common to the semiconductor industry, Petitioner is a fabless semiconductor provider. A fabless semiconductor provider uses third party contract foundries and assemblers in the chip-making process to manufacture wafers, cut the wafers into die and assemble the die into packaged semiconductor devices that are designed in Petitioner's facilities in New York.

Almost 100 percent of Petitioner's packaged devices are shipped from such third party contract manufacturers to Petitioner's New York facility. The packaged devices are ready for production testing. The *Manufacturing Production Test Process* is contractually required by Petitioner's customers as part of the purchase specifications, and is recognized as a necessary process in the semiconductor industry.

The Manufacturing Production Test Process starts with the development of a Production Test Program, which is derived from test simulations provided from the actual design of the device. The vast majority of Petitioner's semiconductor devices are designed in Petitioner's facilities in New York. The purpose of the Production Test Program is to verify the integrity of the assembly of the die within the packaged device through parametric testing. The overall functionality of the die itself is then verified through functional patterns and analog/digital scan vectors. Manufacturing production testing is performed at an elevated temperature of 85°C. The Production Test Program

is developed by Petitioner's Test Engineering Department to run on the Automated Test Equipment located on the Manufacturing Production Test Floor in the New York facilities.

The packaged devices received by Petitioner from the contract manufacturers are in trays and are sealed in special moisture controlled barrier bags. The moisture controlled barrier bags are opened and the trays containing the packaged devices are loaded into a Pick and Place Material Handler by the production test operator. The Automated Test Equipment loads and executes the Production Test Program while the Pick and Place Material Handler moves the untested parts to the test site and sorts tested devices based on the final test result.

Once the packaged devices have been cycled through the Automated Test Equipment, the packaged devices are then sorted by the Pick and Place Material Handler and separated into three major categories in trays:

1. Acceptable Devices - Packaged devices that pass all parametric and functional testing and can be shipped to Petitioner's customers.
2. Parametric Failures - Packaged devices that fail the parametric testing as a result of a package assembly issue in the manufacturing process. The parts can exhibit failure modes such as shorted bond wires or bond wires that have not been properly connected. As a result, these parts cannot be shipped to Petitioner's customers and are scrapped.
3. Functional Failures - Packaged devices that fail the functional patterns or analog/digital scan vectors in the Manufacturing Production Test Program. The parts exhibit a point defect or some other fault at the die level and cannot be shipped to Petitioner's customers and are scrapped.

The packaged devices that have been determined to be acceptable devices are then inspected on a Lead Scanning System to verify the integrity of the leads (QFP-Quad Flat Packages), or solder balls (BGA-Ball Grid Array), prior to final boxing and shipment to customers. This is performed on a sample basis on each lot and ensures that the leads or solder balls have not been damaged during the Manufacturing Production Test Process.

Some of Petitioner's products contain on-board flash memory that can be used to contain customer specific software code. This code enables a single part type to be customized for many customers and multiple board applications. A packaged device of this type would first be tested by the Production Test Program. The packaged devices which pass this test would then be further manufactured on Petitioner's Manufacturing Production Test Floor in New York by programming individual customer specific code into the flash memory.

To complete the Manufacturing Production Test Process, acceptable packaged devices are sealed in moisture resistant barrier bags, bubble wrapped, boxed, labeled and marked. Before, shipping, most of Petitioner's finished goods inventory is maintained in Hauppauge, New York.

TSB-A-04(10)C  
Corporation Tax  
May 24, 2004

A typical semiconductor test system includes the Production Test Program, Automated Test Equipment, Pick and Place Material Handler and Lead Scanning Equipment. Each piece of Automated Test Equipment was purchased at a cost of approximately \$1.0 million, and each Pick and Place Material Handler costs approximately \$250,000. The production test process is conducted in a clean room environment that requires control of ambient temperature and humidity as well as static proof flooring. Equipment technicians, test engineers and production test operators are required to wear static proof garments and footwear while on the production test floor. The Manufacturing Production Test Process is conducted twenty-four hours a day, in three eight hour shifts, seven days a week. Petitioner has over 125 employees supporting the Manufacturing Production Test Process. This process along with final packaging represents approximately 20 percent of the total cost of the product.

The following is a detailed description of the quality assurance function.

Petitioner maintains a Quality Assurance Department separate from the Manufacturing Production Test Department. It is the responsibility of the Quality Assurance Department to monitor the quality level of the product being produced on the Manufacturing Production Test Floor. This is accomplished through the Outgoing Quality Assurance Program that periodically audits material on the Manufacturing Production Test Floor. Additional responsibilities of the Quality Assurance Department include monitoring critical foundry and assembly parameters at Petitioner's suppliers. Statistical Process Control plays an important role and has been implemented to ensure that all critical parameters from the contract foundries, contract assemblers and Petitioner's Manufacturing Production Test Floor are in control. In addition to the above, Manufacturing Production Test Floor yields, utilization and efficiency are closely monitored for maximum performance.

### **Applicable law and regulations**

Section 210.12 of the Tax Law contains the provisions for the investment tax credit, and provides, in part:

(a) A taxpayer shall be allowed a credit, to be computed as hereinafter provided, against the tax imposed by this article. The amount of the credit shall be the percent provided for hereinbelow of the investment credit base. The investment credit base is the cost or other basis for federal income tax purposes of tangible personal property and other tangible property, including buildings and structural components of buildings, described in paragraph (b) of this subdivision....

(b)(i) A credit shall be allowed under this subdivision with respect to tangible personal property and other tangible property, including buildings and structural components of buildings, which are: depreciable pursuant to section one hundred sixty-seven of the internal revenue code, have a useful life of four years or more, are acquired by purchase as

defined in section one hundred seventy-nine (d) of the internal revenue code, have a situs in this state and are (A) principally used by the taxpayer in the production of goods by manufacturing, processing, assembling, ...

(ii) For purposes of this paragraph, the following definitions shall apply –

(A) Manufacturing shall mean the process of working raw materials into wares suitable for use or which gives new shapes, new quality or new combinations to matter which already has gone through some artificial process by the use of machinery, tools, appliances and other similar equipment. Property used in the production of goods shall include machinery, equipment or other tangible property which is principally used in the repair and service of other machinery, equipment or other tangible property used principally in the production of goods and shall include all facilities used in the production operation, including storage of material to be used in production and of the products that are produced.

Section 5-2.4(c) of the Business Franchise Tax Regulations (Article 9-A Regulations), contains the definition of the term *principally used*, and provides as follows:

The term *principally used* means more than 50 percent. A building or addition to a building is principally used in production where more than 50 percent of its usable business floor space is used in storage and production. Floor space used for bathrooms, cafeterias and lounges is not usable business floor space. Space used for offices, accounting, sales and distribution is not used in production. Dual purpose machinery is principally used in production when it is used in production more than 50 percent of its operating time.

## **Opinion**

Pursuant to section 210.12(a) of the Tax Law, an investment tax credit is allowed with respect to tangible personal property and other tangible property, including buildings and structural components of buildings, which are principally used by the taxpayer in the production of goods by manufacturing, processing, assembling, etc., if such property meets the other requirements of section 210.12(b) of the Tax Law. For purposes of section 210.12 of the Tax Law, manufacturing means the process of working raw materials into wares suitable for use or which gives new shapes, new quality or new combinations to matter which already has gone through some artificial process by the use of machinery, tools, appliances and other similar equipment. Property used in the production of goods shall include all facilities used in the production operation, including storage of the products that are produced.

In *Matter of the Petition of Hand Assembly and Packaging, Inc., and Matter of Your Mail Sack, Inc.*, Dec Tax AppTrib, August 30, 1990, the issue was whether a glueing machine and shrink wrap machine were principally used in the production of goods by manufacturing, processing,

assembling, etc., for purposes of the investment tax credit under section 210.12 of the Tax Law. The Tribunal considered “what is the final product, *i.e.*, the goods, produced by the manufacturing and assembly process,” and held that the glueing machine and shrink wrap machine were principally used in the production of goods by manufacturing and assembly. The Tribunal found that “without the function of the glueing machine, the products would not be finished.” Moreover, “the final product manufactured is the whole item which is finally transferred to the purchaser.” With respect to the shrink wrap machine, the Tribunal found that “the shrink wrap becomes an integral part of the final product being sold and, therefore, the machine used to apply the wrap is part of the manufacturing process.”

Technical Services Bureau Memorandum entitled *Investment Tax Credit for Computers and Computer-Related Equipment*, May 15, 1987, TSB-M-87(5)C, explains how to determine whether computers and computer-related equipment are principally used in the production of goods qualifying for the investment tax credit under section 210.12 of the Tax Law. It includes the following as one general example:

Corporation C is an electronics manufacturer that makes printed circuit boards. A computer is used to run the drill press that plots the points to be drilled for insertion of the various electronic components of the board. After the board is wave-soldered, another computer, using a test pin fixture, checks each component on the board and prints out locations of faulty components. Both computers would qualify for the investment tax credit.

In this case, Petitioner is a designer, manufacturer and supplier of semiconductor devices for the personal computer, peripherals and embedded systems marketplaces. It sells its products to personal computer manufacturers. Petitioner states that the majority of its semiconductor devices are designed in its facilities in New York. For the chip-making process, Petitioner uses third party contract foundries and assemblers to manufacture wafers, cut the wafers into die and assemble the die into packaged devices. The packaged devices are shipped from the contractors to Petitioner’s facilities in New York for production testing before the semiconductor devices are considered a finished product ready for sale and shipment. Petitioner’s Manufacturing Production Test Process is contractually required by Petitioner’s customers as part of the purchase specifications of the semiconductor devices produced, and is the final stage of the manufacturing process.

The Manufacturing Production Test Process starts with the development of a Production Test Program which is derived from test simulations provided from the actual design of the devices which are designed in Petitioner’s New York facilities. The purpose of the Production Test Program is to verify the integrity of the assembly of the die within the packaged device through parametric testing. Then the overall functionality of the die itself is then verified. The packaged devices that are determined to be acceptable devices are then inspected on a Lead Scanning System on a sample basis on each lot to verify the integrity of the leads or solder balls. In some cases, some of Petitioner’s devices contain on-board flash memory that can be used to contain customer specific

TSB-A-04(10)C  
Corporation Tax  
May 24, 2004

software code. After being tested by the Production Test Program, this type of device will also be programmed to insert the individual customer specific code into the flash memory. After the completion of all of these activities, the acceptable packaged semiconductor devices are the finished goods ready to be boxed for shipment. These semiconductor devices are sealed in moisture resistant barrier bags, bubble wrapped, boxed, labeled, marked and shipped to Petitioner's customers. Prior to shipment, most of the finished goods inventory is maintained in Petitioner's New York facilities.

Following *Hand Assembly, supra*, and TSB-M-87(5)C, *supra*, Petitioner's Manufacturing Production Test Process that Petitioner performs on the packaged devices that were made by contracting foundries and assemblers according to Petitioner's specifications, is a component of the process of manufacturing the semiconductor devices that Petitioner sells to its customers. The manufacture of the semiconductor devices is not complete until the packaged devices have gone through the Manufacturing Production Test Process, and the acceptable packaged devices are the semiconductor devices that constitute the finished products. The fact that Petitioner contracts with foundries and assemblers to produce the wafers, cut them into die and assemble the die into packaged devices, pursuant to Petitioner's specifications as designed in Petitioner's facilities, before Petitioner conducts the Manufacturing Production Test Process on the packaged devices, does not negate the fact that Petitioner's activities with respect to the Manufacturing Production Test Process are similar to the quality control activities contemplated in the general example describing Corporation C in TSB-M-87(5)C, *supra*, and are part of the manufacturing process of producing the finished product, the acceptable semiconductor devices. Accordingly, Petitioner's Manufacturing Production Test Process constitutes the production of goods by manufacturing within the meaning of section 210.12(b)(ii)(A) of the Tax Law.

If the equipment used in the Manufacturing Production Test Process and any buildings, or structural components of buildings, are *principally used*, as described in section 5-2.4(c) of the Article 9-A Regulations, by Petitioner in the production of goods, and the equipment and buildings, or structural components of buildings, otherwise meet the requirements of section 210.12(b) of the Tax Law, such property will qualify for the investment tax credit under section 210.12 of the Tax Law.

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/s/  
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NOTE: The opinions expressed in Advisory Opinions are limited to the facts set forth therein.