REQUEST LETTER

03-018

NAME
ADDRESS
PHONE
FAX
To Whom It May Concern:

COMPANY is a manufacturer of semiconductors and semiconductor related products. The products manufactured and sold by COMPANY are used in many electronic devices including, personal computers, cellular phones, digital cameras and computer networking equipment. COMPANY is request a ruling on the manufacturing operations that are performed in the State of Utah. The specific question is whether the activities performed at COMPANY'S CITY facility qualify for the manufacturing exemption set forth in Utah Code S. 59-12-104 and further defined in Utah Administrative Rule R865-19S-85.

Before describing the specific processes that are performed in the Test Area, it is important to provide a high-level overview of the entire manufacturing process. Semiconductors are manufactured by building electrical circuits on a silicon wafer. These circuits are built through a complex series of steps applying and then etching away certain chemicals and gasses. Each wafer can contain several hundred individual semiconductors. Once the silicon wafers are completed, they are taken to the Assembly area. In Assembly, the semiconductors are attached to leadframes, and encapsulated in a protective package. The leads are trimmed and formed to the correct specifications. From Assembly, the encapsulated semiconductors are sent to Test.

Test is a manufacturing step that involves a number of electrical and post-electrical manufacturing steps, including burn-in, test floor, excise, marking/scanning, moisture cure and packaging. COMPANY tests 100% of the products that it sells. One of the main functions in Test is to determine how fast each of the parts are able to send and receive information. This "speed grade" is important so that customers can select the correct product for their application. In "burn-in," hundreds of parts are loaded onto "burn-in-boards". The loaded boards are then pre-tested, to ensure that the boards and parts are loaded and functioning properly. Up to thirty-two of the boards are then placed in Ambyx^{TM} oven, and run through a series of electrical tests while the atmosphere inside the oven is constantly changing to varying levels of temperature (-10°C to 127°), voltage (30v to 7.5v), and humidity. The change in temperature is extremely critical, and requires dedicated chilling equipment. The burn-in process can last for up to 140 hours depending on the part type.

Certain parts that fail during the burn-in-tests can be re-worked in the Test area. COMPANY builds redundancy into its parts, and has the ability to short-circuit certain portions of the die. If a die is failing in a specific area, the electronic circuits can be manipulated so that the bad area is not used. The parts are then re-run through the burn-in process to ensure the quality of the product.

Once the parts have completed the burn-in, the parts move to the test floor. There, they are

unloaded from the burn-in-boards and loaded into a handler. The handlers are connected to a tester, which feeds information to the part and asks for information to be read back from the part. This helps determine that the part is receiving, storing, and sending data correctly. The tester also measures the speed with which the part can perform these functions. The speed is measured in nanoseconds, or billionths of a second. This is important, because even though the parts may come from the same wafer, the speed with which the data travels through the part can be different. The speed grades must be determined before the parts can be sold. The testers also perform parametric testing which is to ensure a good connection between the leads and the die.

After electrical testing on the test floor, certain part types are sent to excise. In excise, the carrier ring is removed from the part, and the leads of the package are formed. After excise, all parts are run through the mark and scan process. The markings are applied to the chip package with a laser marker. This mark includes information regarding the speed, manufacturing date and location. The parts are then scanned by lasers to check for co-planarity. Co-planarity ensures that the parts will have a level soldering plane when module cars or motherboards are built. Should a lead be bent, or out of alignment, the Test area will re-align the leads before sending the product to the moisture cure step.

The moisture cure step is vital to ensure the quality of COMPANY'S products. When the customer solders the part into their product, the parts heat up, and any excess moisture between the layers can cause the parts to delaminate and fail. In this step, the parts are baked at ninety degrees Celsius for up to four hours. This ensures that there is no moisture in the device.

From the moisture cure step, the parts move to packaging where they are loaded onto tape and reel or other package types. The tape and reel is similar to a movie reel, with an individual pocket for each chip. These pockets are then covered with a sealing tape, and rolled into the reel. Reels typically hold 500 or 1,000 parts. After the reel is completed, it is inserted into a vapor-barrier, anti-static bag, along with a package of desiccant clay and a humidity indicator card. These bags are then vacuum-sealed, placed in boxes, which are marked for quantity, speed, package, and other configuration information. At this point, the manufacturing process has been completed, and the boxes are sent to finished goods inventory for storage until a customer's order is received.

RESPONSE LETTER

December 12, 2003

NAME
ADDRESS

RE: Private Letter Ruling Request – Manufacturing Equipment and Industrial Fuel Use Exemptions

Dear NAME,

We have received your request for a private letter ruling concerning COMPANY'S activities at its facility in CITY STATE ("FACILITY") and whether certain Utah sales and use tax exemptions apply to these activities. Specifically, you ask if machinery and equipment used in the "Test" processes at the FACILITY qualifies for manufacturing exemption. In addition, you have supplied a graph illustrating the increased use of electricity at the FACILITY since the Test processes began operations. We interpret this submission as a request for information relating to the sales tax exemption for the industrial use of fuel and how it may apply to COMPANY purchase of electricity.

Manufacturing Exemption. COMPANY manufactures semiconductors and semiconductor related products. From your letter, it appears that only the latter portion of the complete manufacturing process occurs at the FACILITY. You describe this portion of the process as "Test," a manufacturing step that involves six separate electrical and post-electrical manufacturing tests. You also refer by name to the six testing steps as the burn-in, test floor, excise, marking/scanning, moisture cure and packaging steps. Specifically, you ask if machinery and equipment used in these six testing steps qualify for the manufacturing equipment exemption. For purposes of our ruling, we assume that the machinery and equipment used in the testing steps was purchased for a new or expanding operations and that it will not be used for research and development testing purposes.

Utah Code Ann. §59-12-104(14) provides a sales tax exemption for certain purchases of machinery and equipment by a manufacturer, which Utah Code Ann. §59-12-102(34) defines as an establishment described in SIC Codes 2000 to 3999. For a manufacturer to qualify for the exemption for machinery and equipment, the equipment must be used in the manufacturing process, have an economic life of three or more years, and be use to manufacture an item sold as tangible personal property.

In *COMPANY, Inc. v. Auditing Division, Appeal No#####*), the Commission issued an Order and Amended Order in which it has found that certain machinery and equipment at the FACILITY qualified for the manufacturing machinery and equipment exemption. Although these Orders were superseded by an Order on Settlement Proposal that did not contain any decision relating to the manufacturing equipment exemption, the Commission believes its initial determination that the FACILITY is a manufacturing facility that manufactures items of tangible personal property for sale is still valid. In addition, the Commission initially determined that the testing of 100% of the manufactured semiconductor components at the FACILITY is an activity that is part of the manufacturing process for purposes of the manufacturing equipment exemption. The Commission still believes this decision to be valid when testing is performed on 100% of products produced at the FACILITY prior to their sale. As you have provided a detailed description of each of the six testing steps that occur at the FACILITY, we shall review these descriptions and determine whether each testing step is part of the manufacturing process.

Utah Admin. Rule R865-19S-85(2)(a) provides that machinery and equipment are eligible for the exemption if they are incorporated into the manufacturing process "from the initial stage where actual processing begins, through the completion of the finished end product, and including final processing, finishing or packaging. . ." Based on this guidance concerning the scope of the manufacturing process and your description of the testing processes performed at the FACILITY, the Commission believes that all six testing steps occur prior to the completion of the finished end

product and, as a result, are activities performed during the manufacturing process. Accordingly, if the machinery and equipment used in the six testing steps has an economic life of three or more years, it qualifies for the manufacturing equipment exemption. Our response is based on the information provided in your letter and the assumptions we have expressed. Should the actual circumstances be different, our response could also be different.

Industrial Use of Fuel Exemption. From the graph you provided, it appears that the electrical use at the FACILITY has greatly increased since DATE, an increase that we assume corresponds to the facility beginning to perform the six testing processes described above. Section 59-12-104(42) provides an exemption for sales of natural gas, electricity, heat, coal, fuel oil, or other fuels for industrial use. Utah Code Ann. §59-12-102(30) defines "industrial use" to include the use of natural gas, electricity, heat, coal, fuel oil, or other fuels in manufacturing tangible personal property at an establishment described in SIC Codes 2000 to 3999.

Two of the requirements that the FACO;OTU must meet to qualify for this exemption are that it manufacture tangible personal property and that it be an establishment described in SIC Codes 2000 to 3999. These same requirements are necessary to qualify for the manufacturing equipment exemption. The Commission found that the FACILITY met these requirements in Appeal No. 00-1158 when it initially ruled that the facility qualified for the manufacturing equipment exemption on certain transactions. As a result, the Commission finds that the facility also meets these requirements for purposes of the industrial use of fuel exemption.

Accordingly, if you can demonstrate that the electricity used at the FACILITY is used for industrial purposes and not other purposes, the purchase of the electricity qualifies for the exemption. All electricity used to manufacture tangible personal property would qualify for the exemption, including electricity to provide lighting, heating, and cooling in the area where manufacturing takes place. Certain electrical use, such as that consumed in administrative areas and raw material storage and finished goods storage areas, would be used for a non-industrial purpose and would not qualify for the exemption.

If electricity is furnished through separate meters that measure the industrial use of electricity apart from the non-industrial use, the electricity furnished through the industrial use meter would be exempt from taxation while the electricity furnished through the non-industrial use meter would be taxable. Utah Admin. Rule R865-19S-35(C) provides guidance when electricity is furnished through a single meter where a portion is exempt and a portion is taxable. In this case, the predominant use of the electricity (i.e., whichever use is greater than 50%) determines the taxable status of the electricity. Nevertheless, if a taxpayer has a single meter that furnishes electricity predominantly for non-industrial purposes and if the taxpayer can convincingly demonstrate the amount of electricity used for exempt industrial purposes, the Commission has historically allowed the exemption for the industrial use electricity even though it was not the predominant usage.

Lastly, UCA §59-12-104(52) provides a sales and use tax exemption for the sale or lease of semiconductor fabricating or processing materials. Although you have not requested information about this exemption, we point out that it may also apply to certain property located at the FACILITY. Should you have any other questions, please contact us.

For the Commission,

Marc B. Johnson
Commissioner

MBJ/KC
03-018