

The Committee will approve the export of equipment described in this Note if no member country has filed an objection within four weeks of the receipt of complete information on the case.

1030. ELECTRONICS

1031. EQUIPMENT, ASSEMBLIES AND COMPONENTS

1031. NOTES:

1. The embargo status of equipment, devices and components described in 1031., other than those described in 1031.1.a.3. to 10., which are specially designed or which have the same functional characteristics as other equipment is determined by the embargo status of the other equipment.
2. The embargo status of integrated circuits described in 1031.1.a.3. to 9. which are unalterably programmed or designed for a specific function is determined by the embargo status of the other equipment.

N.B.:

When the manufacturer or applicant cannot determine the embargo status of the other equipment, the embargo status of the integrated circuits is determined in 1031.1.a.3. to 9.

1031. 1. Electronic devices and components:

1031. 1. a. General purpose integrated circuits, as follows:

NOTES:

1. The embargo status of wafers (finished or unfinished), in which the function has been determined, is to be evaluated against the parameters of 1031.1.a.
2. Integrated circuits include the following types: "Monolithic integrated circuits"; "Hybrid integrated circuits"; "Multichip integrated circuits"; "Film type integrated circuits", including silicon-on-sapphire integrated circuits; "Optical integrated circuits".

1031. 1. a. 1. Integrated circuits, designed or rated as radiation hardened to withstand a total dose of 5×10^5 rad (Si), or higher;

(For integrated circuits designed or rated against neutron or transient ionising radiation, see the Munitions List.)

1031. 1. a. 2. Integrated circuits described in 1031.1.a.3 to 10, rated for operation at an ambient temperature below 219 K (-54°C) or above 398 K (125°C);

NOTE:

1031.1.a.2. does not apply to integrated circuits for civil automobiles or railway engines.

1031. 1. a. 3. "Microprocessor microcircuits", "microcomputer microcircuits" and microcontroller microcircuits, having any of the following:

NOTES:

1. 1031.1.a.3. does not embargo silicon-based "microcomputer microcircuits" or microcontroller microcircuits having an operand (data) word length of 8 bit or less and not covered by Note 2 to 1031.
2. 1031.1.a.3. includes digital signal processors, digital array processors and digital coprocessors.

1031. 1. a. 3. a. An external data bus width exceeding 32 bit or an arithmetic logic unit with an access width exceeding 32 bit;

b. A clock frequency exceeding 40 MHz;

c. An external data bus width of 32 bit or more and capable of executing 12.5 million instructions per second (MIPS) or more; or

Technical Note: If MIPS are not specified, the inverse of the average instruction cycle time (in micro-seconds) should be used.

d. More than one data or instruction bus or serial communication port for external interconnection in a parallel processor with a transfer rate exceeding 2.4 Mbyte/s;

1031. 1. a. 4. Storage integrated circuits, as follows:

a. Electrical erasable programmable read-only memories (EEPROMs) with a storage capacity:

1. Exceeding 1 Mbit per package; or
2. Exceeding 256 kbit per package and a maximum access time of less than 80 ns;

b. Static random-access memories (SRAMs) with a storage capacity:

1. Exceeding 1 Mbit per package; or

2. Exceeding 256 kbit per package and a maximum access time of less than 25 ns;

c. Storage integrated circuits manufactured from a compound semiconductor;

1031. 1. a. 5. Converter integrated circuits, as follows:

a. Analogue-to-digital converters having any of the following:

1. A resolution of 8 bit or more, but less than 12 bit, with a total conversion time to maximum resolution of less than 10 ns;

2. A resolution of 12 bit with a total conversion time to maximum resolution of less than 200 ns; or

3. A resolution of more than 12 bit with a total conversion time to maximum resolution of less than 2 microseconds;

b. Digital-to-analogue converters with a resolution of 12 bit or more, and a "settling time" of less than 10 ns;

1031. 1. a. 6. Electro-optical or "optical integrated circuits" for "signal processing" having all of the following:

a. One or more internal "laser" diodes;

b. One or more internal light detecting elements; and

c. Optical waveguides;

1031. 1. a. 7. Field programmable gate arrays having either of the following:

a. An equivalent gate count of more than 30,000 (2 input gates); or

b. A typical "basic gate propagation delay time" of less than 0.4 ns;

1031. 1. a. 8. Field programmable logic arrays having either of the following:

a. An equivalent gate count of more than 5,000 (2 input gates); or

b. A toggle frequency exceeding 100 MHz;

1031. 1. a. 9. Neural network integrated circuits;

1031. 1. a. 10. Custom integrated circuits for which either the function is unknown, or the embargo status of the equipment in which the integrated circuits will be used is unknown to the manufacturer, having any of the following:

a. More than 144 terminals;

b. A typical "basic gate propagation delay time" of less than 0.4 ns; or

c. An operating frequency exceeding 3 GHz;

1031. 1. a. 11. Digital integrated circuits, other than those described in 1031.1.a.3 to 10., based upon any compound semiconductor and having either of the following:

a. An equivalent gate count of more than 300 (2 input gates); or

b. A toggle frequency exceeding 1.2 GHz;

1031. 1. b. Microwave or millimetre wave devices:

1031. 1. b. 1. Electronic vacuum tubes and cathodes, as follows:

(For frequency agile tubes, see Item 2011 on the Munitions List.)

NOTE:

1031.1.b.1. does not embargo tubes designed or rated to operate in the Standard Civil Telecommunications Bands at frequencies not exceeding 31 GHz.

1031. 1. b. 1. a. Travelling wave tubes, pulsed or continuous wave, as follows:

1. Operating at frequencies higher than 31 GHz;

2. Having a cathode heater element with a turn on time to rated RF power of less than 3 seconds;

3. Coupled cavity tubes, or derivatives thereof;

4. Helix tubes, or derivatives thereof, with any of the following:

a. 1. An "instantaneous bandwidth" of half an octave or more; and

2. The product of the rated average output power (expressed in kW) and the maximum operating frequency (expressed in GHz) of more than 0.2;

b. 1. An "instantaneous bandwidth" of less than half an octave; and

2. The product of the rated average output power (expressed in kW) and the