

1041.2.b.2. notes con't.

N.B.:

1. The control status of "signal processing" or "image enhancement" equipment specially designed for other equipment with functions limited to those required for the other equipment is determined by the control status of the other equipment even if it exceeds the "principal element" criterion.
2. For the control status of "digital computers" or related equipment for telecommunications equipment, see Category 1050 (Telecommunications).
- c. The technology for the "digital computers" and related equipment is determined by 1045.

3. a. Designed or modified for "fault tolerance";

Note:

For the purposes of 1041.3.a., "digital computers" and related equipment are not considered to be designed or modified for "fault tolerance" if they utilise any of the following:

1. Error detection or correction algorithms in "main storage";
2. The interconnection of two "digital computers" so that, if the active central processing unit fails, an idling but mirroring central processing unit can continue the system's functioning;
3. The interconnection of two central processing units by data channels or by using shared storage to permit one central processing unit to perform other work until the second central processing unit fails, at which time the first central processing unit takes over in order to continue the system's functioning; or
4. The synchronization of two central processing units by "software" so that one central processing unit recognises when the other central processing unit fails and recovers tasks from the failing unit.

b. "Digital computers" having a "composite theoretical performance" ("CTP") exceeding 28,000 Mtops;

c. "Electronic assemblies" specially designed or modified for enhancing performance by aggregation of "computing elements" ("CEs") so that the "CTP" of the aggregation exceeds the limit in 1041.3.b.;

Note 1:

1041.3.c. applies only to "electronic assemblies" and programmable interconnections not exceeding the limit in 1041.3.b. when shipped as unintegrated "electronic assemblies". It does not apply to "electronic assemblies" inherently limited by nature of their design for use as related equipment controlled by 1041.3.d., or 1041.3.e.

Note 2:

1041.3.c. does not control "electronic assemblies" specially designed for a product or family of products whose maximum configuration does not exceed the limit of 1041.3.b.

d. Deleted

e. Equipment performing analogue-to-digital conversions exceeding the limits in 1031.1.a.5.;

f. Deleted

g. Equipment specially designed to provide external interconnection of "digital computers" or associated equipment which allows communications at data rates exceeding 1.25 Gbyte/s.

Note:

1041.3.g. does not control internal interconnection equipment (e.g., backplanes, buses), passive interconnection equipment, "network access controllers" or "communication channel controllers".

4. Computers, as follows, and specially designed related equipment, "electronic assemblies" and components therefore:

- a. "Systolic array computers";
- b. "Neural computers";
- c. "Optical computers".

1042. Test, Inspection and Production Equipment

None.

1043. Materials

None.

1044. Software

Note:

The control status of "software" for the "development", "production", or "use" of equipment described in other Categories is dealt with in the appropriate Category. The control status of "software" for equipment described in this Category is dealt with herein.

1. "Software" specially designed or modified for the "development", "production" or "use" of equipment or "software" controlled by 1041. or 1044.
2. "Software" specially designed or modified to support "technology" controlled by 1045.
3. Specific "software", as follows:
 - a. Operating system "software", "software" development tools and compilers specially designed for "multi-data-stream processing" equipment, in "source code";
 - b. "Software" having characteristics or performing functions exceeding the limits in Category 1150 (Information Security);

Note:

1044.3.b. does not control "software" when accompanying its user for the user's personal use.

1045. Technology

1. "Technology" according to the General Technology Note, for the "development", "production" or "use" of equipment or "software" controlled by 1041. or 1044.

Technical Note on "Composite Theoretical Performance" ("CTP"):

Abbreviations used in this Technical Note:

"CE" = "computing element" (typically an arithmetic logical unit)

FP = floating point

XP = fixed point

t = execution time

XOR = exclusive OR

CPU = central processing unit

TP = theoretical performance (of a single "CE")

"CTP" = "composite theoretical performance" (multiple "CEs")

R = effective calculating rate

WL = word length

L = word length adjustment

* = multiply

Execution time "t" is expressed in microseconds, TP and "CTP" are expressed in millions of theoretical operations per second (Mtops) and WL is expressed in bits.

Outline of "CTP" Calculation Method

"CTP" is a measure of computational performance given in Mtops. In calculating the "CTP" of an aggregation of "CEs" the following three steps are required:

1. Calculate the effective calculating rate R for each "CE";
2. Apply the word length adjustment (L) to the effective calculating rate (R), resulting in a Theoretical Performance (TP) for each "CE";
3. If there is more than one "CE", combine the TPs, resulting in a "CTP" for the aggregation.