CTP FOR CPUs and aggregations of CEs

For a CPU with a single CE,

CTP = TP

(for CEs performing both fixed and floating point operations

$TP = \max(TP_{fp}, TP_{xp})$)

1040. Technical Note "COMPOSITE THEORETICAL PERFORMANCE" (CTP) (Continued)

For aggregations of multiple CEs operating simultaneously:

Note 1: For configurations which do not allow all of the CEs to run simultaneously, the configuration of permissible CEs that provides the largest CTP should be used. The TP of each contributing CE is to be calculated at its maximum value theoretically possible before the CTP of the combination is derived.

Note 2: A single integrated circuit chip or board assembly may contain multiple CEs.

Note 3: Simultaneous operations are assumed to exist when the computer manufacturer claims concurrent, parallel or simultaneous operation or execution in a manual or brochure for the computer.

$CTP = TP_1 + C_2 * TP_2 + ... + C_n * TP_n,$

where TP_1 is the highest of the TPs, and C_i is a coefficient determined by the strength of the interconnection between CEs, as follows:

For multiple CEs sharing memory:

$C_2 = C_3 = C_4 = ... = C_n = 0.75$

Note: CEs share memory if they access a common segment of solid state memory. This memory may include cache storage, main storage, or other internal memory. Peripheral memory devices such as disk drives, tape drives or RAM disks are not included.

For Multiple CEs not sharing memory, interconnected by one or more data channels:

$$C_i = 8 * \frac{S_i}{(WL_i * TP_i)}$$

$(i = 2, ..., n)$

where S_i = sum of the maximum data rates (in units of MByte/sec) for all data channels connected to the ith CE or CPU,

Note: This does not include channels dedicated to transfers between one individual processor and its most immediate memory or related equipment.

WL_i is the operand length for which TP_i was obtained, and the factor 8 normalizes S_i (measured in bytes per second) and WL (given in bits).

Note: If C_i exceeds 0.75, the formula for CE/CPU sharing direct addressable memory applies (i.e., C_i cannot exceed 0.75).

NOTES:

1. Governments may permit, as administrative exceptions, the shipment to the Czech Republic, Poland, and Slovak Republic of everything embargoed by this Category, except:
   a. Computers embargoed by 1041.1. or 1041.2.;
   b. "Digital computers" embargoed by 1041.3.c. having a "composite theoretical performance" (CTP) exceeding 41 million theoretical operations per second (Mtops), and specially designed components therefor;
   c. Computers embargoed by 1041.4., and specially designed related equipment, "assemblies" and components therefor;
   d. "Software" specially designed and technology "required" for the equipment described in a., b. or c. above, embargoed by 1044 or 1045.

2. Governments may permit, as administrative exceptions, the shipment to the People's Republic of China of "digital computers", specially designed components and related equipment therefor, embargoed by 1041.3.c., e., f., h., i., j. or k., or "software" embargoed by 1044.1., provided:
   a. They will be operated by civil end-users for civil applications;
   b. They are exported as complete systems or enhancements to previously exported systems up to the limits in Note 2.d.;
   c. They have been primarily designed and used for non-strategic applications;
   d. The "CTP" of the "digital computers" does not exceed 20 Mtops; and
   e. Equipment containing "terminal interface equipment" does not exceed:
      1. The limits of Note 4 to Category 1050;
      2. The limits of 1051.b.3.b.; or
      3. A "digital transfer rate" of 100 Mbit/s on the common media for "network access controllers" and related equipment embargoed by 1051.b.3.c;

f. Any embargoed "software" is the minimum required for the "use" of the approved "digital computers" and related equipment.

3. Governments may permit, as administrative exceptions, the shipment of "digital computers" embargoed by 1041.3.c., or specially designed components therefor, and "software" embargoed by 1044.1., provided:
   a. They will be operated by civil end-users for civil applications;
   b. They have been primarily designed and used for non-strategic applications;
   c. The "CTP" of the "digital computers" does not exceed 20 Mtops;
   d. They do not contain any embargoed related equipment;
   e. When exported as enhancements, the enhanced "digital computer" does not exceed the limit in Note 3.c.;
   f. They are not shipped as enhancements to computers designed within a proscribed country;

   N.B.:
   This does not preclude the enhancement of such computers when they are used by civil end-users in civil applications.

   g. Any embargoed "software" is the minimum required for the "use" of the approved "digital computers";
   h. The Government of the exporting country shall:
      1. Be reasonably satisfied that:
         a. The equipment will be used primarily for the specific non-strategic application for which the export would be approved; and
         b. The equipment will not be used for the design, development or production of embargoed products;
      2. Promptly report monthly the export to the Committee, in the regular monthly statistical returns, identifying specifically the equipment to be provided, the end-user with his full name and address and the end-use of the equipment; and
      3. Promptly report to the Committee any evidence of the removal or diversion of the equipment from authorised purposes related to the specific export licence.

4. Governments may permit, as administrative exceptions, the shipment of equipment embargoed by 1041.3.e. or f. provided:
   a. The "maximum bit transfer rate" does not exceed 36 Mbit/s;
   b. It is exported as part of a computer system or as an enhancement to a previously exported system;
   c. The Government of the exporting country shall notify the Committee 30 days prior to the proposed export; and
   d. The Government of the exporting country shall:
      1. Be reasonably satisfied that:
         a. The equipment will be used primarily for the specific non-strategic application for which the export would be approved; and
         b. The equipment will not be used for the design, development or production of embargoed products;
      2. Promptly report monthly the export to the Committee, in the monthly statistical returns, identifying specifically the equipment to be provided, the end-user with his full name and address and the end-use of the equipment; and
      3. Promptly report to the Committee any evidence of the removal or diversion of the equipment from authorised purposes related to the specific export licence.

5. The Committee will favourably consider the export to the Czech Republic, Poland, and Slovak Republic of:
   a. "Hybrid computers" embargoed by 1041.2. when not combined with specially designed software for modelling simulation or design integration for complete rocket systems and unmanned air vehicle systems;
   b. Computers embargoed by 1041.4, and specially designed related equipment, "assemblies" and components therefor;
   c. "Software" specially designed and technology "required" for the equipment described in a. or b. embargoed by 1044 or 1045.

6. The Committee will favourably consider the export of "digital computes" or related equipment therefor embargoed by 1041.3.c., e, f. or g., or "software" embargoed by 1044.1., provided:
   a. They will be operated by civil end-users for civil applications;
   b. They have been primarily designed and used for non-strategic applications;
   c. They do not exceed any of the following limits:
      1. CTP of the "digital computers" - 23 Mtops;