

## 10. High Performance Computers (Section 742.12)

### Export Control Program Description And Licensing Policy

The revision of export controls on computers, was and will continue to be, a high priority for the Administration as computer technology improvements continually are enhancing system performance. Major revisions occurred in 1993, and again in January 1996, and now a new study has been commissioned to review system improvements and the parameters for measuring their performance. In reviewing export controls, the Administration takes into account: 1) the rapid advance of computing technology, 2) U.S. security and nonproliferation interests, and 3) the need for a policy that will remain effective over an eighteen to twenty-four month period.

For the purpose of these controls, four Computer Country Groups were established in 1996 under the U.S.-Japan bilateral High Performance Computer (HPC) Export Control Agreement. The specific performance level at which prior government review is required varies based on country of destination and the end-user and end-use of the computers. In this sliding scale of controls, the scope of control is commensurate to the performance of the computer and the level of risk associated with destination and end-use.

Congress added provisions to the FY 1998 National Defense Authorization Act (NDAA), which President Clinton signed on November 18, 1997, to require exporters to notify the Bureau of Export Administration (BXA) of their intent to export and/or reexport HPCs with a performance capability of between 2,000 and 7,000 million theoretical operations per second (MTOPS) to end-users in countries known in the Export Administration Regulations (EAR) as Tier 3 countries. Under the new law, if the Secretary of Commerce, Defense, Energy or State, or the Director of the Arms Control and Disarmament Agency, has specific objections to a proposed export or reexport within ten days, BXA will require a license application. The legislation will take effect when the Department of Commerce revises the EAR accordingly in 1998. Current regulations allow HPCs up to 7,000 MTOPS to be exported without a license to civil end-users in Tier 3 countries. The legislation also requires the Department of Commerce to perform post-shipment verifications on exports of HPCs over 2,000 MTOPS to Tier 3 countries, whether or not a licensed was required.

The controls in force during 1997 (i.e., before the enactment of the FY 1998 NDAA), listed by Tier group limits and requirements, are as follows:

Computer Country Tier 1 -- The first level of the sliding scale allows exports to most industrialized countries to proceed without prior government review (license exception). Exporters are required to maintain records of shipments and must forward certain information to the government as requested for shipments of computers at a CTP (Composite Theoretical Performance) of 2000 MTOPS and above. Reexport and retransfer restrictions also apply.

(See Addendum to this chapter for listing of specific countries by Country Tiers.)

Computer Country Tier 2 -- The second level applies to countries with mixed (but generally low risk) proliferation and export control records. There is no prior government review up to 10,000 MTOPS, but exporters are required to maintain records for computers at 2,000 MTOPS and above and report this information to the U.S. Government, as requested. Reexport and retransfer restrictions apply. Exports above 10,000 MTOPS to these countries require prior government review (an export license). Above 20,000 MTOPS, additional safeguards procedures may be required.

Computer Country Tier 3 -- The third level applies to countries posing proliferation, diversion or other security risks. Licenses are required above 2,000 MTOPS for military and proliferation end-uses and users, and at 7,000 MTOPS for all other end-uses and users, with possible requirements for full safeguards for systems at 10,000 MTOPS and above, depending on the end-user. No prior government review is required for exports to civil end-uses and users between 2,000 and 7,000 MTOPS, but exporters are required to maintain records and report this information to the U.S. Government, as requested. Reexport and retransfer restrictions apply.

Computer Country Tier 4 -- The fourth level applies to terrorist countries (Cuba, Iran, Iraq, Libya, North Korea, Sudan and Syria). The President decided to continue to deny high performance computer technology to these destinations. A license is required from Commerce to export or reexport to any end-user in Syria computers with a CTP greater than or equal to 6 MTOPS. Cuba, Iran, Iraq, Libya, North Korea and Sudan are subject to comprehensive trade embargoes and hence U.S. government authorization is required for exports of any computer, regardless of MTOP level, to Cuba, Libya, Iran, Iraq, North Korea, and Sudan, and for reexports of computers with a CTP equal to or above 6 MTOPS to Iran.<sup>1</sup> (The Department of the Treasury's Office of Foreign Assets Control administers these trade embargoes. However, to avoid duplication in license requirements, Commerce and Treasury have allocated licensing responsibility in many instances. Commerce exercises licensing responsibility for exports and reexports to Cuba and North Korea and for reexports to Libya and Treasury exercises licensing responsibility for exports and reexports to Iran and Iraq and for exports to Libya.) Applications to export or reexport controlled computers to designated terrorist supporting countries will generally be denied.

### **Analysis of Control as Required by Section 6(f) of The Act**

#### **A. The Purpose of the Control**

The purpose of the computer controls is to prevent the transfer or diversion of computers to end-users who might make unauthorized use of such computers. The controls demonstrate the degree of U.S. concern over illegitimate access to such machines, and assist the United States in its efforts to obtain multilateral cooperation consistent with the HPC Agreement.

## B. Considerations and/or Determinations of the Secretary of Commerce:

1. Probability of Achieving the Intended Foreign Policy Purpose. The widespread availability of high performance computers and related technology, and the speed with which the technology level of these items changes and becomes more diffuse, suggest there is a decreasing probability that U.S. export controls will achieve their desired objective.
2. Compatibility with Foreign Policy Objectives. United States policy is to restrict the flow of goods and technology that would compromise U.S. security and foreign policy interests. Extensive U.S. leadership and participation in various multilateral control groups demonstrate the U.S. commitment in this regard. Since high performance computer export controls focus on security and foreign policy concerns, these controls substantially support U.S. foreign policy objectives.
3. Reaction of Other Countries. The Secretary has determined that the reaction of other countries to the extension of controls is not likely to render the controls ineffective in achieving the intended foreign policy objectives, or to be counterproductive to U.S. foreign policy interests. Countries that want high performance computers for legitimate civilian purposes should have no objection to the control because export licenses are reviewed on a case-by-case basis and are denied only if the export would adversely affect U.S. security or foreign policy objectives.
4. Economic Impact on U.S. Industry. In FY 1997, Commerce approved 20 licenses for high performance computers, valued at \$ 57.5 million. Commerce denied only one license application for a high performance computer, valued at \$.3 million in FY 1997. The major deregulation in January 1996 resulted in a reduced licensing compliance burden for U.S. industry. In FY 1995, for example, Commerce approved 306 licenses, valued at \$525.8 million.
5. Enforcement of Control. The Secretary has determined that the United States has the ability to enforce the control effectively. Significant problems of product identification are not expected. Because this control covers only one class of items, training of enforcement personnel to familiarize them with the equipment can be done without undue difficulty. In addition, the actual computer hardware is only one component of the total system. Specialized application software, maintenance, and spare parts often require continued contact with the exporter. Therefore, with appropriate safeguards, computers could not be completely, readily, and reliably diverted to unauthorized uses, moved, or adequately maintained for extended periods of time without the knowledge and support of the exporter or manufacturer.

## C. Consultation with Industry

The Department of Commerce published a notice in the *Federal Register* on October 8, 1997, requesting public comments on its foreign policy-based export controls. As of the date of publication of this report, the Department had received no comments on export controls of high-performance computers.

However, the computer industry has expressed in other fora its concerns that the implementation of additional controls on the exports of HPCs could hamper U.S. industry's abilities to conduct legitimate trade and hurt its competitiveness relative to other producer nations who do not have such unique controls in place.

#### D. Consultation with Other Countries

The United States has actively consulted our allies and friends to ensure that they understand the basis for the controls. The United States is working particularly closely with Japan and others in the Wassenaar Arrangement, to explain that our controls are consistent with the basic foundations and principles already agreed in these negotiations. Exporters are required to report certain information to the U.S. Government consistent with U.S. multilateral commitments on information sharing in the Wassenaar regime.

#### E. Alternative Means

Alternatives to controls would not be the most effective means of achieving the intended strategic and non-proliferation objectives. The United States will continue to use diplomatic efforts to discourage other countries from engaging in activities which the controls address, and to consult with other supplier countries about adhering to multilateral export controls. However, these efforts can only supplement, not replace, the effectiveness of actual export controls.

#### F. Foreign Availability

The January 1996 revisions to computer export controls took a realistic account of the likely effectiveness of controls in the face of the rapid advance and diffusion of computer technology worldwide. The key to effective export controls is setting control levels above foreign availability--that is, the level of computer capability that end-users of security and proliferation risk can obtain from non-U.S. sources because of widespread availability or by diversion from normal commerce. When the United States adjusted the controls in 1996, it was evident that computer technology would continue to change rapidly, warranting a new review about every eighteen to twenty-four months. Thus, the Administration has announced that it is again reviewing computer controls, as the eighteen-month time frame has passed.

## ADDENDUM

COMPUTER TIER	COUNTRIES
1	Australia, Austria, Belgium, Canada <sup>2</sup> , Denmark, Finland, France, Germany, Greece, Holy See, Iceland, Ireland, Italy, Japan, Liechtenstein, Luxembourg, Mexico, Monaco, Netherlands, New Zealand, Norway, Portugal, San Marino, Spain, Sweden, Switzerland, Turkey, and the United Kingdom, and all territories thereof.
2	Antigua & Barbuda, Argentina, Bahamas, Barbados, Bangladesh, Belize, Benin, Bhutan, Bolivia, Botswana, Brazil, Brunei, Burkina Faso, Burma, Burundi, Cameroon, Cape Verde, Central Africa, Chad, Chile, Colombia, Congo, Costa Rica, Cote d'Ivoire, Cyprus, Czech Republic, Dominica, Dominican Republic, Ecuador, El Salvador, Equatorial Guinea, Eritrea, Ethiopia, Fiji, Gabon, Gambia (The), Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, Hungary, Indonesia, Jamaica, Kenya, Kiribati, Korea (Republic of), Lesotho, Liberia, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Marshall Islands, Mauritius, Micronesia (Federated States of), Mozambique, Namibia, Nauru, Nepal, Nicaragua, Niger, Nigeria, Palau, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Rwanda, St. Kitts & Nevis, St. Lucia, St. Vincent and Grenadines, Sao Tome & Principe, Senegal, Seychelles, Sierra Leone, Singapore, Slovak Republic, Slovenia, Solomon Islands, Somalia, South Africa, Sri Lanka, Surinam, Swaziland, Taiwan, Tanzania, Togo, Tonga, Thailand, Trinidad & Tobago, Tuvalu, Uganda, Uruguay, Western Sahara, Western Samoa, Zaire, Zambia, and Zimbabwe.
3	Afghanistan, Albania, Algeria, Andorra, Angola, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia & Herzegovina, Bulgaria, Cambodia, China (People's Republic of), Comoros, Croatia, Djibouti, Egypt, Estonia, Georgia, India, Israel, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lithuania, Macedonia (The Former Yugoslavia Republic of), Mauritania, Moldova, Mongolia, Morocco, Oman, Pakistan, Qatar, Romania, Russia, Saudi Arabia, Serbia and Montenegro, Tajikistan, Tunisia, Turkmenistan, Ukraine, United Arab Emirates, Uzbekistan, Vanuatu, Vietnam, and Yemen.
4	Cuba, Iran, Iraq, Libya, North Korea, Sudan, and Syria.

### ENDNOTES

1. *The scope of the embargo as pertains to reexports to Sudan has not been determined as of the submission of this report.*
2. *Exports of HPC items classified on the Commerce Control List under Export Control Classification Number (ECCN) 4A003 can be exported to Canada with no license required (NLR) rather than under the license exception for high performance computers*

*(CTP). The record keeping requirements do not apply for HPC exports to Canada. Retransfer and reexport restrictions still apply.*