Network Requirements [2]

This section describes the Asynchronous Transfer Mode (ATM) network and the hardware and software requirements for the Bus Based Gateway (BBG) and VME interfaces.

Cray Research supports the following types of ATM interfaces:

- Optical carrier 3 (OC3), a 155Mbit/s interface that can run in synchronous optical network (SONET) or synchronous digital hierarchy (SDH) framing
- Transparent asynchronous transmitter/receiver interface (TAXI), a 100Mbit/s interface

Figure 1 shows an ATM network configuration with both BBG and VME interfaces used for Cray connectivity to ATM networks.

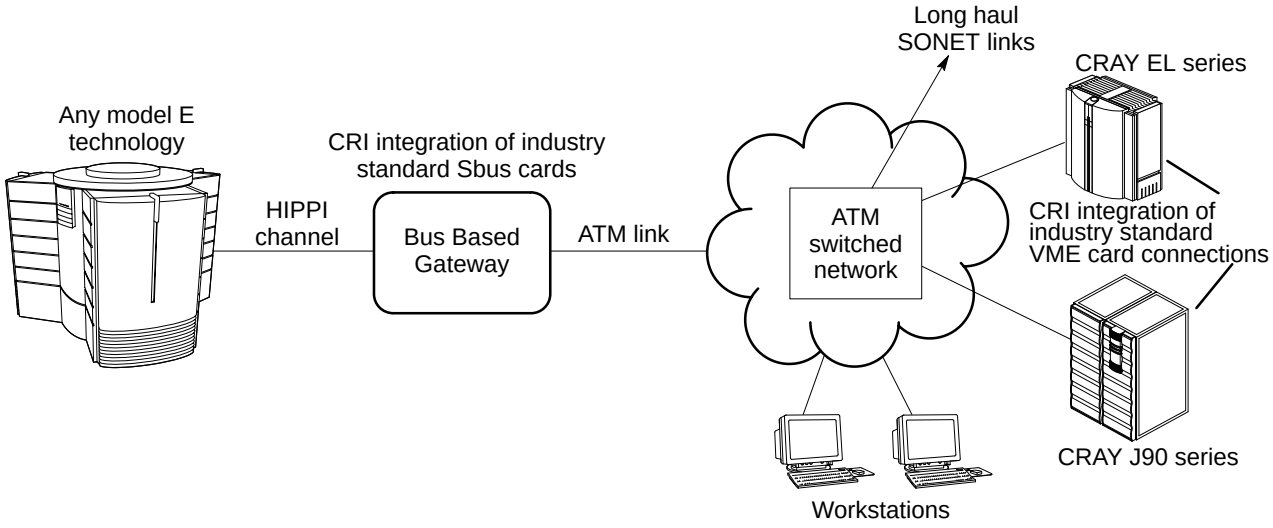

Figure 1. Network configuration with ATM

BBG interface
2.1

This subsection describes BBG hardware and software requirements.

BBG hardware requirements
2.1.1

The Cray Research Bus Based Gateway (BBG) differs from traditional external network adapters in that the resident ATM interface appears to be integral to the Cray I/O subsystem (IOS). After the BBG is initialized, you can manage the ATM interface cards in the BBG by using `ifconfig`(8), `netstat`(1B), and other UNICOS commands.

The following components comprise the Cray Research BBG interface:

- BBG cabinet
- HIPPI Sbus (source and destination) card
- ATM Sbus card

Any Cray Research system with an IOS model E can interface to an ATM channel by using the BBG for connectivity. However, besides using this external adapter, your site must also have the following hardware:

- IOS-E High Performance Parallel Interface (HIPPI) channel (HCA-3/HCA-4) running at 100 Mbyte/s. To support more than one BBG, you must use a HIPPI switch or multiple HIPPI channels.
- 62.5/125 micron multimode fiber with an appropriate connecting Square Connector (SC) or Straight Tip (ST) connector.

BBG software requirements
2.1.2

The Bus Based Gateway (BBG) software requirements include the UNICOS 9.0 release or later and the BBG asynchronous software included in the `bbgrel.tar` file. To install the BBG asynchronous software, see subsection 3.2.4, page 11.

Figure 2 shows the relationship of the functional software units to the BBG interface.

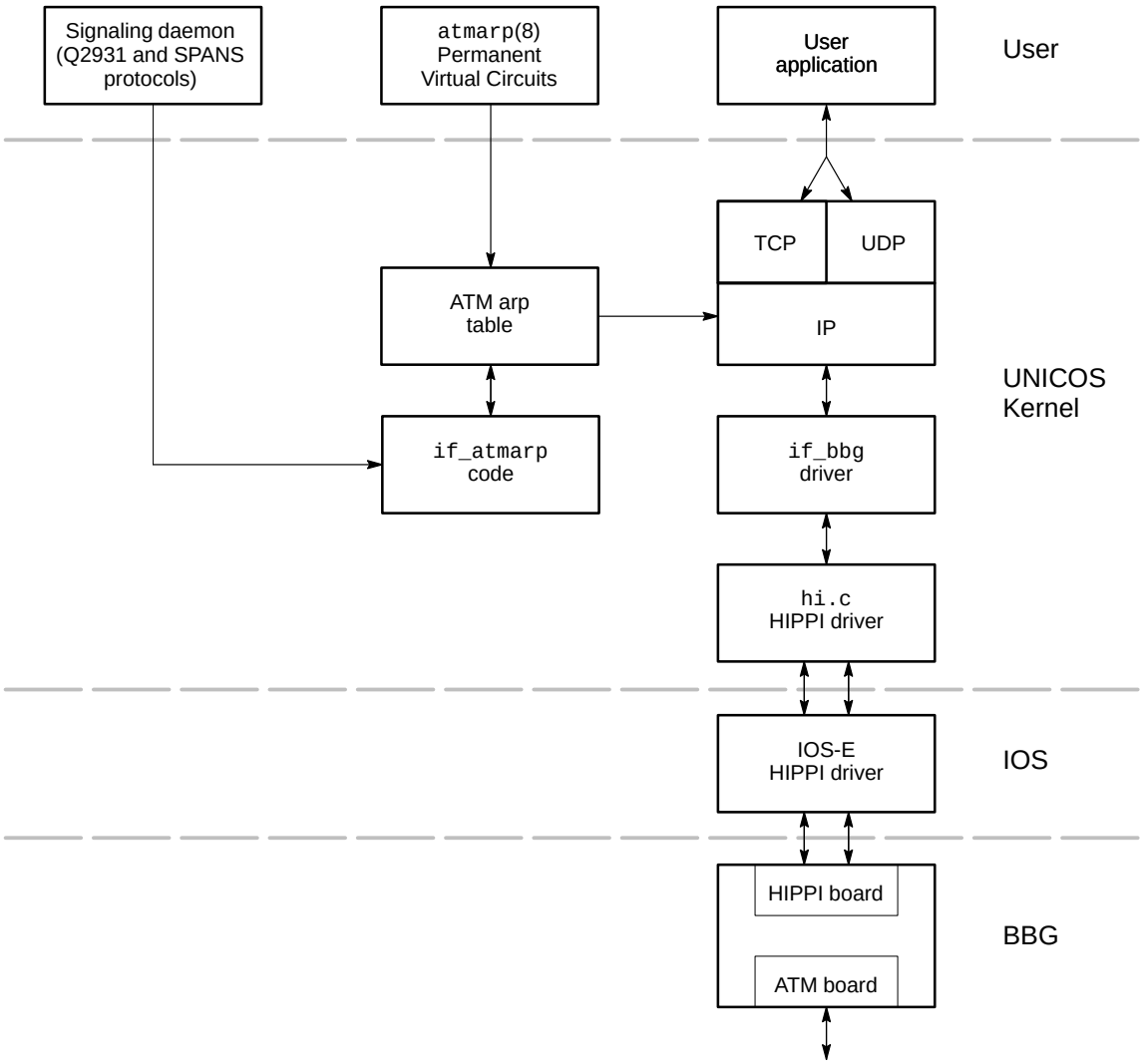

Figure 2. BBG functional software units

The following commands are unique to the BBG and can be found in the `/usr/lbin/bbg/bin` directory after you have installed the BBG software as described in subsection 3.2, page 10:

- `bbgatmstat`(8)
- `bbgconfig`(8)
- `bbghwconfig`(8)
- `bbgoc3config`(8)

Man pages are provided for these commands.

The following command can be found in the `/etc` directory:

- `bbgstart`(8)

A man page is provided for this command.

The following man page is provided as an introduction to BBG functionality:

- `bbg`(4)

VME interface
2.2

This subsection describes VME hardware and software requirements.

VME hardware requirements
2.2.1

Hardware requirements for the VME interface include a system in the CRAY EL series with the following features:

- A maximum of 16 ATM modules per system
- 62.5/125 micron multimode fiber with an appropriate connecting SC or ST connector
- One or more open IOS slots

To achieve maximum performance, it is recommended that only one ATM card be placed in each IOP.

VME software requirements
2.2.2

Software requirements for the VME interface include the following:

- IOS microcode file.
- IOS driver.
- UNICOS 8.0.4A release or later for CRAY EL systems; UNICOS 8.0.4.1 release or later for CRAY J90 systems (UNICOS release includes `atmadmin`(8) and `atmarp`(8) commands).

Figure 3 shows the relationship of the functional software units to the VME interface.

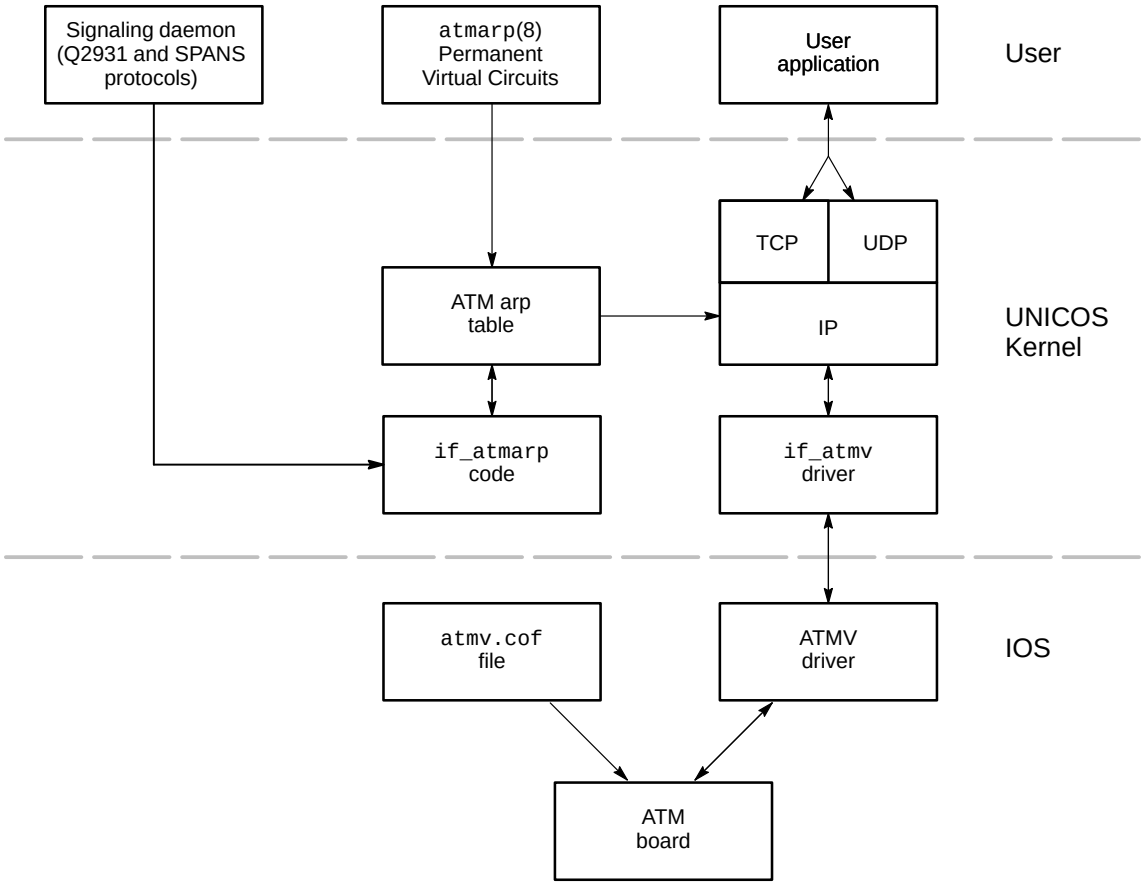

Figure 3. VME functional software units