The choice of a multi-line serial board for a CHARON-11/2000 system.

The CHARON-11/2000 system is a hardware and software package offered by Software Resources International combining the flexibility of the CHARON-11 PDP-11 emulator with a powerful Intel/NT PC in either an industrial 19 inch rack mounted cabinet or in a traditional desk top cabinet. For further information on this package see http://www.sri-gva.ch/charon/docs/. The CHARON-11/2000 systems are shipped pre-configured with a PCI 8-line serial card (Usually the MOXA Smartio C168H/PCI or the Comtrol Rocketport PCI), to bring the number of available serial ports to 10 (including the 2 standard PC serial ports). Within the constraints of the application workload and the NT4 operating system, customers can freely add additional cards to increase the number of lines. This table provides some guidance that will also be applicable for users who purchase a CHARON-11 software license and configure their own Intel/NT4 systems.

Model and recommendation	Comments
MOXA Smartio C168H/PCI Recommended for 8 or 16 lines, one instance of CHARON-11.	Low cost 8-line board. Has adjustable transmit silo on board (1-16 bytes) which is convenient when driving process I/O equipment, where transmit delay might be critical (set the silo to 1). A maximum of four boards (32 lines) can be installed. Note: Each board requires a unique IRQ; we do not recommend this solution for more than 16 lines or for multiple parallel instances of CHARON-11 with DECnet, since each Ethernet card also requires a separate IRQ.
Comtrol RocketPort PCI Recommended for up to 64 medium speed lines (2400 bps or lower) and up to 4 CHARON-11 instances on a Dual CPU system.	Available with 8, 16 or 32 lines. A maximum of 4 boards can be installed (128 lines). Has adjustable scan rate for very fast ports. Does not require an IRQ. Can fix the baud rate independent of the CHARON_11 application setting. Except the 8J, supports modem control signals (RI only on Rocketport Plus). Drivers for Alpha/NT also available.
AccelePort® C/X PCI Recommended for up to 128 low speed (<1200 bps average), or up to 64 medium speed lines (2400 bps) and up to 4 CHARON-11 instances on a Dual CPU system.	Requires one PCI slot for up to 128 serial lines, using remote (<300 meters) concentrators. A fiber optic solution is available for concentrators located at several Km distance. The card supports many operating systems. More expensive solution, but convenient where many ports must be connected (e.g. data logging). Supports modem control including Ring Indicator (RI).

Notes:

- Windows NT permits the creation of 256 serial ports, which use above COM9: a naming convention like \\.\COM255. Each COM port created by the serial card driver can be freely assigned to any of the instances of CHARON-11 by referring to them in a CHARON-11 configuration file. Care should be taken that two or more instances of CHARON-11 are not assigning ports to the same NT serial port name.

- Except where the parameter assignment is deliberately fixed by the NT driver of the serial card, CHARON-11 will dynamically set the baud rate, bits and parity parameters of a serial line according to the PDP-11 operating system commands or application settings.

- The maximum number of ports supported by CHARON-11 is determined by the PDP-11 operating system, the NT host system and the performance. The biggest factor influencing the serial line throughput is the acceptable delay caused by the NT drivers on a heavily loaded system. For terminal interaction (editing text on a VTxxx type device), this results in a delayed echo, which usually causes no problems. Such delay can cause incorrect operation in process control equipment that is controlled via a serial line. With properly configured serial line cards, the CHARON-11/2000 systems will provide generally an overall performance of 3* a PDP11/93 with 32 lines shared between 1-3 CHARON-11 instances for a single 500 Mhz CPU system or 64 lines for a dual 500 Mhz CPU system.