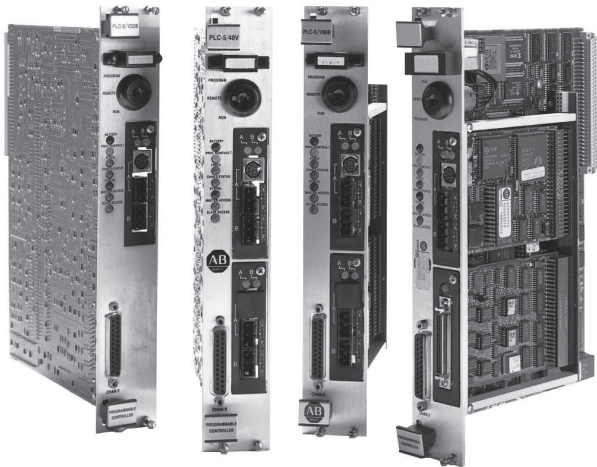## 1785-V30B, -V40B, -V40L, -V80B

PLC-5 VME Processors bring the technology of the enhanced PLC-5 processors to the VMEbus environment. These processors are fully compliant with the C.1 VMEbus specification.

As many as eight PLC-5 VME processors can coexist with other VMEbus computers and I/O modules in a single VMEbus chassis. The PLC-5 VME processor can act as either a master or a slave. As a master, it can access data in other VMEbus modules; as a slave, it can let other VMEbus masters access its VMEbus global memory area. The PLC-5 VME processor is also capable of functioning as the VMEbus system controller.

These PLC-5 VME processors occupy two slots in a standard 6U (full-height) VMEbus chassis. This means you can integrate PLC-5/40 functions into your VME architecture for true open-systems operation.

PLC-5 VME processors are advanced, full-function programmable controllers optimized for real-time control. This capability frees your VME system from doing time-critical control tasks by providing direct access to the Allen-Bradley line of industrial automation products, including the industry's widest array of digital and analog I/O, including intelligent I/O modules.

This integration of the Allen-Bradley architecture into a standard VME System is a union that offers an attractive, open-system solution for demanding, high-performance industrial manufacturing and process applications.

Features

- Processors have a VMEbus programming interface (C.1 release) allowing them to access VMEbus CPU and I/O modules

- User-configurable master/slave operation with no restrictions on third-party VME masterships

- Includes an additional 64K bytes of global VME RAM memory in the A24 (or "standard") address space that can be configured and shared with other VMEbus masters in the same chassis

- Processors can operate independently or by command from the VME host CPU and can respond to host commands to transfer data or program files continuously or selectively across the VMEbus backplane via global memory

- PLC-5 VME processors can generate and respond to VME interrupts

- Communication to global memory is user-configurable by continuous copy command at the end of a processor scan or by event-driven ladder message instruction

- Integral single-level arbiter (SGL); bus arbitration can be disabled to permit alternative schemes by other VME arbiters

- PLC-5 VME processors include one built-in RS-232-C/422-A/423-A port and one to four communication channels that are configurable for remote I/O or DH+ networks. The PLC-5/V40L processor also includes a channel for connection to the Allen-Bradley extended local I/O link for high-speed processing applications

- Application programs developed for your 1771-based PLC-5 systems are portable to your PLC-5 VME-based system, allowing you to take advantage of specialized VME I/O modules and applications

- Force values of digital I/O and analog I/O, including values of DeviceNet I/O

Specifications $C\,\epsilon$

	operating	non-operating
Vibration	0.015 inch (0.38 mm) P-P displacement with 2.5 g peak (maximum) acceleration over 5-2,000 Hz	0.030 inch (0.76 mm) P-P displacement with 5.0 g peak (maximum) acceleration over 5-2,000 Hz
Shock	30 g, 11 ms duration, half-sine shock pulse	50 g, 11 ms duration, half-sine shock pulse
Altitude	3,000 m (0-10,000 ft)	12,000 m (0-40,000 ft)
Humidity	0-90% (without condensation)	0-95% (without condensation)
Temperature	0 to 65° C (32 to 149° F) at point of entry of forced air with 200 LFM of air flow across the circuit board. Derated 2° C per 300 m (1000 ft) over 2,000 m (6,600 ft). 2° C per min maximum excursion gradient	-40 to 85° C (-40 to 185° F) 5° C per min maximum excursion gradient

Power		
	maximum	21W
	typical	16W
Backplane current		
	maximum	4A @ 5V dc
	typical	3.2A @ 5V dc
Battery		1770-XYV
Weight		• 1785-V30B: 0.56 kg (1.25 lb) • 1785-L40L, -L40B, -L80B: 0.67 kg (1.5 lb)

For more information, see the PLC-V5 VMEbus Programmable Controllers Product Data, pub. 1785-2.26.

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1785 PLC-5 Processor Selection

Processor/ Cat. No.	Max User Memory Words	Memory Types	Total I/O Maximum [6]	Analog I/O Max	Program Scan Time/Kword	I/O Scan time/Rack [7] (in a single Chassis, ext local or remote)
PLC-5/V30B (1785-V30B)	• 32K PLC DT/program • 64K bytes VME	• Battery-backed static RAM (PLC) • Dynamic RAM (VME)	• 896 (any mix) or • 896 in + 896 out (complementary)	896	1ms (min) 2ms (typ)	• 10ms @ 57.6k bit/s • 7ms @ 115.2k bit/s • 3ms @ 230.4k bit/s
PLC-5/V40B (1785-V40B)	• 48K PLC [5] DT/program • 64K bytes VME	• Battery-backed static RAM (PLC) • Dynamic RAM (VME)	• 1920 (any mix) or • 1920 in + 1920 out (complementary)	1920	1ms (min) 2ms (typ)	• 10ms @ 57.6k bit/s • 7ms @ 115.2k bit/s • 3ms @ 230.4k bit/s
PLC-5/V40L (1785-V40L)	• 48K PLC [5] DT/program • 64K bytes VME	• Battery-backed static RAM (PLC) • Dynamic RAM (VME)	• 1920 (any mix) or • 1920 in + 1920 out (complementary)	1920	1ms (min) 2ms (typ)	• 0.5ms (ext. local) • 10ms @ 57.6k bit/s • 7ms @ 115.2k bit/s • 3ms @ 230.4k bit/s
PLC-5/V80B (1785-V80B)	• 100K PLC [5] DT/program • 64K bytes VME	• Battery-backed static RAM (PLC) • Dynamic RAM (VME)	• 2944 (any mix) or • 2944 in + 2944 out (complementary)	2944	1ms (min) 2ms (typ)	• 10ms @ 57.6k bit/s • 7ms @ 115.2k bit/s • 3ms @ 230.4k bit/s

[1] The maximum size of data table is user configurable

[2] The maximum size of data table is 64K; the largest single program file can be 56K

[3] Limit of 32K words per data table file

[4] Limit of 32K words per data table file and 56K words per program file and a total data table size of 64K words

[5] The PLC-4/V40, -5/V40L, and -5/V80 processors have a limit of 32K words per data table file.

[6] **Any mix** — means that any number of the I/O can be inputs and any number can be outputs, with no placement restrictions.

Complementary — means that to configure this many I/O, pairs of modules must have duplicate addresses. This pair must be either 2 output modules sharing the same output image bits or an input module and an output module complementing each other. In either case, module placement must conform to these restrictions.

[7] For remote I/O unless otherwise specified.

I/O rack — an I/O addressing unit that can contain a maximum of 128 I/O with unique addressing of I/O modules or 256 I/O with duplicate addressing of I/O modules.

1785 PLC-5 Processor Selection (continued)

Number of ControlNet/Ethernet/Remote/ Extended Local-I/O/DH+ Ports — Mode	Maximum Number of I/O Chassis				Number of RS-232-C/422-A /423-A ports [2]	Control Coprocessor Expn Port	Backplane Current Load	Processor/ Cat. No.
	Total	Ext Local	Universal Remote [1]	ControlNet				
• 2 DH+/Remote I/O (Adap or Scan)	28	0	28	0	1	Yes	3.0A	**PLC-5/V30B (1785-V30B)**
• 4 DH+/Remote I/O (Adap or Scan)	60	0	60	0	1	Yes	3.3A	**PLC-5/V40B (1785-V40B)**
• 2 DH+/Remote I/O (Adap or Scan) • 1 Extended Local I/O	60	16	60	0	1	Yes	3.5A	**PLC-5/V40L (1785-V40L)**
• 4 DH+/Remote I/O (Adap or Scan)	92	0	92	0	1	Yes	3.3A	**PLC-5/V80B (1785-V80B)**

[1] **Universal Remote I/O Chassis** — any device with a remote I/O adapter port compatible with the Allen-Bradley universal remote I/O link. This includes 1771 I/O chassis, 1791 I/O blocks, PanelView displays, RediPANEL displays, Dataliner displays, 1336 drives.
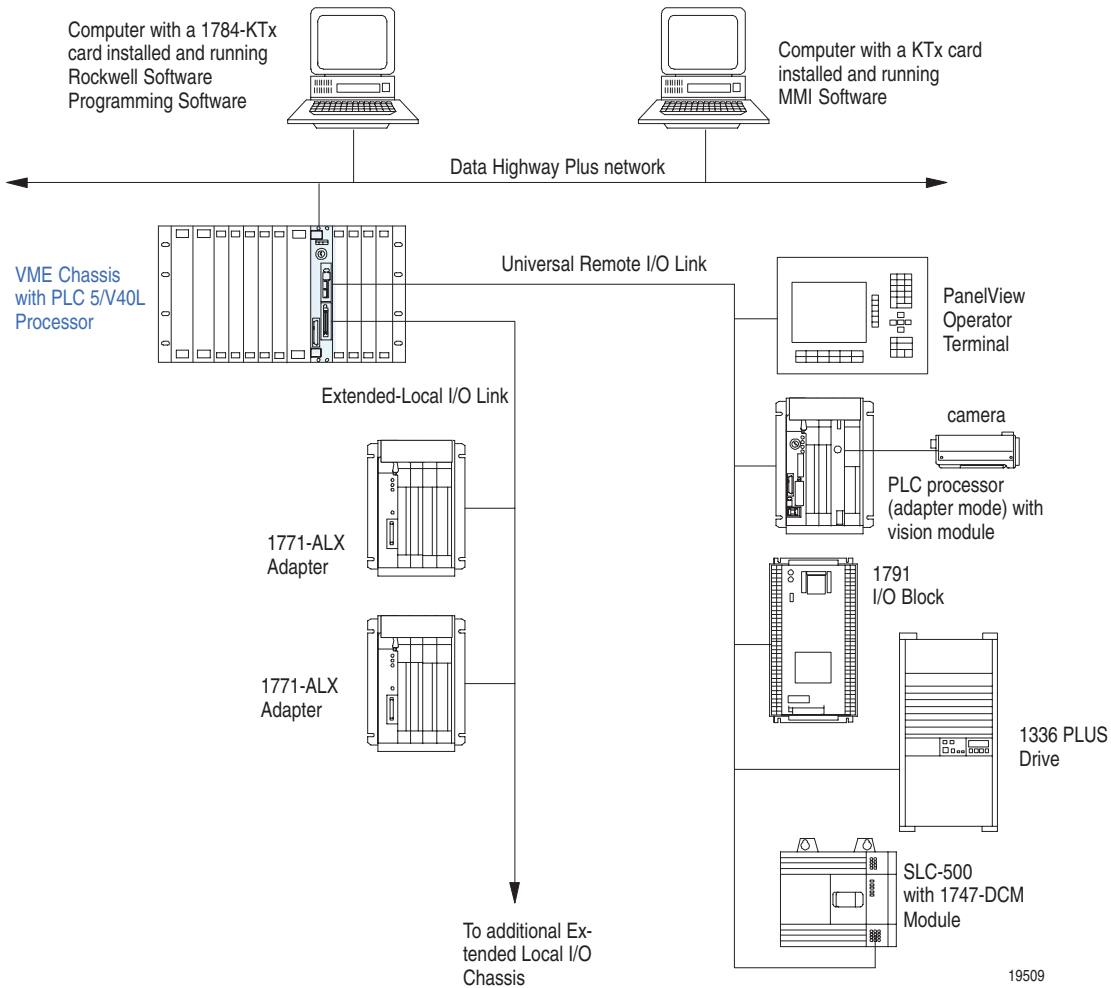
[2] RS-422-A and RS-423-A both have a cable length limitation of 61m (200 ft).
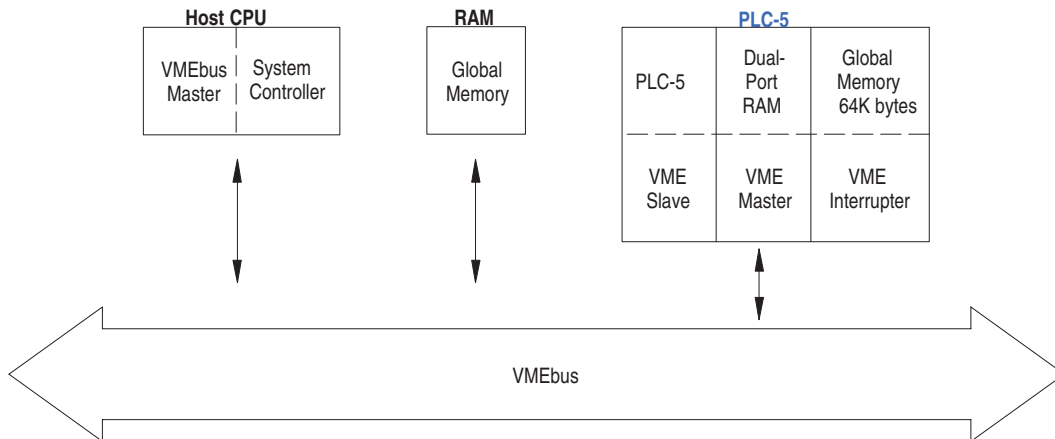
Allen-Bradley 1785V40L

PLC-5 Processors for VMEbus Systems

Typical Configuration

Computer with a 1784-KTx
card installed and running
Rockwell Software
Programming Software

Computer with a KTx card
installed and running
MMI Software

Data Highway Plus network

VME Chassis
with PLC 5/V40L
Processor

Universal Remote I/O Link

PanelView
Operator
Terminal

Extended-Local I/O Link

camera

PLC processor
(adapter mode) with
vision module

1771-ALX
Adapter

1791
I/O Block

1771-ALX
Adapter

1336 PLUS
Drive

To additional Ex-
tended Local I/O
Chassis

SLC-500
with 1747-DCM
Module

19509

PLC-5 Interface to VMEbus

Host CPU		**RAM**	**PLC-5**		
VMEbus Master	System Controller	Global Memory	PLC-5	Dual-Port RAM	Global Memory 64K bytes
			VME Slave	VME Master	VME Interrupter

VMEbus

18668

6008-SV2R, -SV1R

The Allen-Bradley VMEbus remote I/O scanner modules allow a VME master processor direct access to I/O adapter devices on the Allen-Bradley Universal Remote I/O link.

You can install multiple VME master processors and multiple scanners in each VME chassis. The 6008-SV2R supports two remote I/O channels, while the 6008-SV1R supports one remote I/O channel.

The VMEbus I/O scanner modules provide up to 230.4k bit/s communication and continuous block-transfers, and support additional memory and a maximum of 32 adapters per I/O channel.

Set your scanner to SV-compatible mode if you are replacing a 6008-SV scanner and want the 6008-SV2R or -SV1R to operate like your old scanner. In SV-compatible mode, you can run previously developed applications with only minor modifications, and the scanner can support a maximum of 16 adapters per channel.

The VME master processor sends commands to the scanner to control remote I/O. The scanner then transfers the information necessary to complete high-priority single-transfers and block-transfers of data to and from the VMEbus. The scanner is always a slave device on the VMEbus.

Features

- Let you manage as many as 16 racks (32 adapters) per scanner channel in SV-superset mode, and 8 racks (16 adapters) per channel in SV-compatible mode

- Let you select the I/O scan time by configuring a communication rate of 57.6k bit/s, 115.2k bit/s, or 230.4k bit/s

- Incorporate an embedded communication microprocessor, which increases scanner performance

- Changes in the scanner input table can cause VME interrupts

- Support two configurable VME operating modes that let you select scanner features that match your needs

- Replace bundles of I/O ribbon cables with industrially rugged, single twisted-pair remote I/O cable, which reduces setup time and installation and integration costs

- Let you program continuous block-transfers (in addition to single block transfers), which reduces operating overhead

- Can initiate one-shot block-transfers while maintaining in-progress continuous block-transfers

Specifications CE

Power	Maximum:	5V dc @ 2.5A
	Typical:	5V dc @ 2.3A
Temperature	Operating:	0 to 60°C (32 to 140°F) derated 2°C per 1000 ft (300m) over 6600 ft (2000m)
	Non-operating:	-40 to 85°C
Humidity	Operating:	5 to 95% (without condensation)
	Non-operating:	5 to 95% (without condensation)
Altitude	Operating:	0 to 10,000 ft (3000m)
	Non-operating:	0 to 40,000 ft (12,000m)
Shock	Operating:	30g, 11ms duration, ½ sine shock pulse
	Non-operating:	50g, 11 ms duration, ½ sine shock pulse
Vibration	Operating:	2.5g peak (max)
	Non-operating:	5.0g peak (max) acceleration over 5 - 500Hz sine wave (point-to-point) 1 oct/min sine sweep

For more information, see the VMEbus Remote I/O Scanner Product Data, publication 6008-2.6.

Typical Configuration