Racal 7064

Single Slot Prototyping Module - Message-Based

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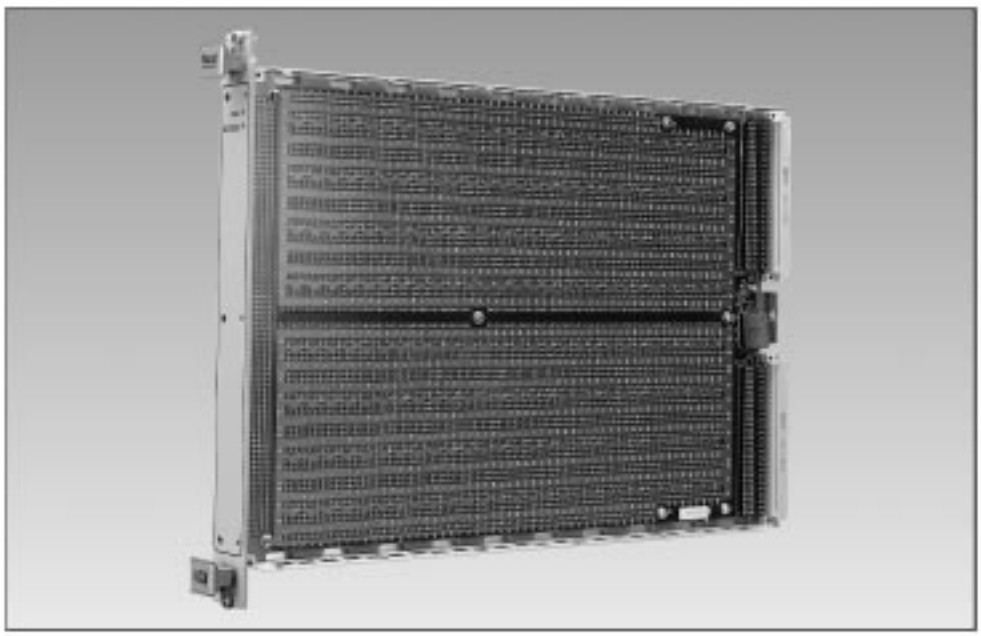
Development Module Series 7064



- **Message-based or Plain Modules Available with Full VXIbus Access**
- **Multiple Slot Widths With Local Bus Support**
- **96 Buffered Digital I/O Control Lines**
- **On-Board M6800 CPU Bus Directly Accessible to User**
- **RAM and ROM for User Definable Firmware**
- **Over 100 Square Inches of User Definable Area**

Custom VXIbus Circuit Design Made Easy
The 7064 Series are C-size development modules that are available in Message-based and Plain (no interface) configurations.

The 7064 Series is designed to simplify the engineer's task of developing VXIbus circuitry and products. The VXIbus interface becomes transparent, allowing the user to concentrate on product or circuit design. Racal Instruments' unique combination of development tools makes it ideal for designing high performance VXIbus products that require high data throughput to custom circuitry.

The Message-Based Daughterboard
The message-based interface (Option 05) is a small, plug-in surface-mount daughter-board that mounts directly over the development area. This interface allows the user to control circuitry using high-level commands to I/O lines or the on-board microprocessor. The card has a 68000 microprocessor that is directly accessible by the user's circuitry for high level control. The upper half of the 68000 address space is available for user development. The lower half is reserved for the breadboard's I/O ports, on-board memory ,circuitry, and VXIbus registers. All VXIbus registers are implemented, providing access to even the VXIbus user definable registers. These may be changed using the Application Programming Interface.

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An internal timer is used to monitor the time since power-up initialization. A set of routines is furnished to allow the user access to the timer, adding yet another tool for circuit design.

The message-based interface supports the local bus on the VXIbus backplane, which can either be used for proprietary signals, or for a single daughter card that can drive up to twelve prototyping modules in a chassis.

Digital Control
For simple circuitry that does not require the capability of 68000 microprocessor control, the 7064 message-based interface provides 96 buffered TTL control lines, programmable in either binary, octal, decimal or hex. The 96 I/O lines can also be accessed in either bit, byte or word format and can be used for digital I/O control.

Flexible On-board Software
The message-based interface has a simple and flexible software architecture that allows users to load and execute their own application code in a variety of ways. Additionally, the message-based interface provides several system services in the form of C language function calls to ease programming for the user. Many message-based interface system configuration parameters are also programmable. This gives the user the ability to custom-tailor the interface for a particular application.

Users may load many individually named blocks of application-specific code and then later invoke selected blocks by name. The user may also load an application-specific command parser which, in turn, may invoke these blocks as well as message-based interface system services.

For speed-critical applications, it is advantageous for users to load and execute their own code. By doing so, the user's application can execute at the full speed of the message-based interface's on-board Motorola 68000 microprocessor. The Application Programming Interface provided makes this simple and trouble free with several examples. "Pseudo register-based" routines are also available to provide high-speed data transfers as needed.

Development Software/Tools
Several options are available to aid the user in software development and debugging. The simplest option is to utilize the recommended Intermetrics 68000 C compiler and cross assembler or other C compiler that supports a 68000 target.

For complex software development, the XDB source-level debugger is recommended. This debugger provides a windowing debug software package and RS232 interface board with on-board memory. When used in conjunction with the Intermetrics compiler and cross assembler, application programs can be single stepped in real time while running on the target. Program development and debugging are significantly simplified as a result.

The Bare Board Development Module
Over 100 square inches are available on the bare board module, Model 7064-25, which has no I/O lines. The development area consists of two separate arrays with holes on 0.1 inch centers. Each area is subdivided into columns which are lettered and numbered for user convenience. There are two uncommitted power distribution grids in each array. These grids may be connected to any of the power supplies provided by the VXIbus backplane. There are also two power planes dedicated to +5V and ground. All modules provide the EMI power filtering required by the VXIbus specification, removing the need for the user to design this circuitry. All seven VXIbus supply lines are available to the user and are fused to reduce the risk of damage to the backplane.

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7064 Specifications

CPU CONFIGURATION

Type

Standard: 8MHz M68000
Option 14: 12.5MHz M68000

Memory

	RAM	ROM	Non-Vol
Standard	64k	64k	16k
Expands to	256k	512k	64k

PROTOTYPING FEATURES

Buffered I/O

96 Channels: TTL Compatible

Development Software

Intermetrics 68000 C Cross-Compiler, XDB Source-Level Debugger (Both are recommended for software development for the message-based versions. Neither product is available from Racal.)

Breadboarding Space

Plain Breadboard: 100in^2
Message Based Breadboard: 70in^2

VXI Local Bus Access

Allows control of multiple 7064 modules.

VXI TTLTRG Access

Can generate or receive VXIbus interrupts.

VXIbus INTERFACE DATA

(Message based, VXIbus Rev. 1.3 compliant)

Status Lights

Red: Fail Self-Test
Red: Access

VXIbus Backplane Support

TTLTRG0-7, LBUS (Local Bus)

ENVIRONMENTAL DATA

Weight

2.1lbs. (0.95kg)

EMC (Council Directive 89/336/EEC)

EN55022-B, EN50082-1

Safety (Low Voltage Directive 73/23/EEC)

EN6010-1, IEC1010-1, UL3111-1, CSA 22.2#1010

CE The CE Mark indicates that the product has completed and passed rigorous testing in the area of RF Emissions, Immunity to Electromagnetic Disturbances and complies with European electrical safety standards.

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ORDERING INFORMATION

Model	Description	Part Number
7064	Single Slot Prototyping Module with 8MHz Interface and disk	RD70-0010-000
7064-1	Double Slot Prototyping Module with 8MHz Interface and disk	RD70-0010-001
7064-1P	Double Slot Message-Based Breadboard (PGA Hole Pattern) and disk	RD70-0034-002
7064-2	Single Slot Prototyping Module with 12.5 MHz Interface and disk	RD70-0010-002
7064-6	Single Slot Prototyping Module (No Interface)	RD70-0011-000
7064-7	Double Slot Prototyping Module (No Interface)	RD70-0011-001
7064-8	Double Slot Prototyping Module with 12.5 MHz Interface and disk	RD70-0010-003
7064-25	Single Slot Bare Breadboard Module	RD70-0026-001
7064-25P	Single Slot Bare Breadboard Module (PGA Hole Pattern)	RD70-0035-001
7064-25-002	Double Slot Bare Breadboard Module	RD70-0026-002
7064-25P-002	Double Slot Bare Breadboard Module (PGA Hole Pattern)	RD70-0035-002
7064-25-003	Triple Slot Bare Breadboard Module	RD70-0026-003
OPT. 05	68000 Message Based Interface Card (8.0 MHz)	70-0014-000
7064-11	Single Slot Enclosure	RD70-0017-001
7064-12	Double Slot Enclosure	RD70-0017-002
7064-13	Triple Slot Enclosure	RD70-0017-003
OPT. 14	68000 Message Based Interface Card (12.5MHz)	70-0014-001
ACCES KIT	Accessory Kit - Handle and Hardware	70-0031-000

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