

Features

- Multiple I/O and serial communication functions on a single slot 6U VME card.
- Up to ten separate D/S Channels.
- User can specify five different function modules.
- Automatic background BIT testing continually checks and reports health of each channel.
- Control via VME or Ethernet.
- FIFO Buffering/Trigger (select modules).
- Optional onboard 5 VA programmable reference supply.
- Connections via front panel, rear connector, or both.
- Designed for both Commercial and MIL applications.
- Convection and Conduction cooled versions.
- Software Support Kit and Drivers available.



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Convection-Cooled



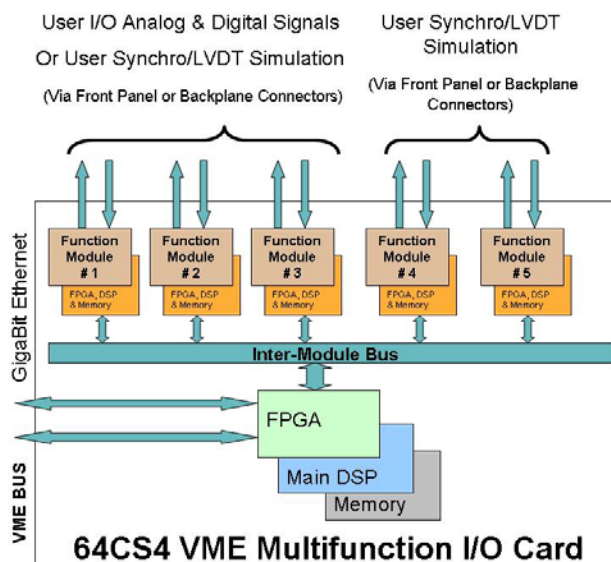
Conduction-Cooled

Description

The 64CS4 is a single slot Multi-function 6U VME card for applications requiring higher power Digital-to-Synchro/Resolver or L(R)VDT (D/S, D/L(R)VDT) stimulus output, as well as I/O and Communication functions. The 64CS4 provides up to ten separate D/S channels with multiple programmable features. The "mother board" contains 5 independent module slots, each of which can be populated with a function specific module. This unique design eliminates the need for multiple, specialized, single-function cards by providing a single-board solution for a broad assortment of programmable, multi-channel signal interface I/O modules such as: Digital (TTL/CMOS, Differential, Discrete, Relay); Analog (A/D, D/A, RTD, Strain Gage, Isolated Power Supply); Positional/Motion Control (Synchro/Resolver/ LVDT/RVDT Measurement/ Simulation, AC Reference, Encoder/Counter).

In addition, the 64CS4 incorporates communication modules such as RS-232/422/423(188C)/485, MIL-STD-1553, CANBus and ARINC 429/575. This approach increases packaging density, saves enclosure slots and reduces power consumption. Additional enhancements include FIFO data buffering for A/D, D/A, S/D and LVDT functions. (Please see all available functions on the following page.)

NAI's flexible, leading-edge, fully programmable and continuous background built-in-test (BIT) feature is always enabled and continually checks the health of each channel. If a fault is detected, it is immediately reported and the specific channel is identified with no downtime for troubleshooting. Testing is totally transparent to the user, requires no external programming, and has no effect on the standard operation of the card.



General Board Specification

- **Power** – +5VDC, (±12VDC for select modules)
- **Operating Temp** – 0° C to 70° C or -40° C to 85° C
- **Size** – 233mm x 20mm x 160mm (6U)

Available Function Modules

(GEN2 Platforms)

Note 1 – Indicates wide selection (See part number in Operations Manual)

Note 2 – Contact factory for availability

Note 3 – Additional channels available from front panel on certain platforms

	Module	Channels	Input Scaling	Resolution	Accuracy (±)	Sampling (programmable)
A/D Converter	C1	10	±1.25,2.5,5 or 10 VDC	16 bit	0.05% FS	200 KHz max
	C2	10	±5,10,20 or 40 VDC	16 bit	0.1% FS	200 KHz max
	C3	10	0-25 mA	16 bit	0.1% FS	200 KHz max
	C4	10	±6.25,12.5,25 or 50 VDC	16 bit	0.1% FS	200 KHz max
	CA	10	(Channels 1-6 are C2 type and Channels 7-10 are C3 type)			
D/A Converter	F1	10	±10 or 0-10 VDC	16 bit	0.05% FS	15µs max
	F3	10	±5 or 0-5 VDC	16 bit	0.05% FS	10µs max
	F5	4	±25 or 0-25 VDC	16 bit	0.05% FS	10µs max
	J3	10	±1.25 or 0-1.25 VDC	16 bit	0.05% FS	10µs max
	J5	10	±2.5 or 0-2.5 VDC	16 bit	0.05% FS	10µs max
	J8	4	±20 to ±100 VDC	16 bit	0.15% FS	350µs max
	RTD	G4	6	16.7 Hz/channel	16 bit	(±) 0.05% FS
G5 ²		4	4.7 Hz – 4.8 KHz	16 bit	(±) 0.1% FS	Interface Conventional 4-Arm Bridge
Strain Gage	G5 ²	4	4.7 Hz – 4.8 KHz	16 bit	(±) 0.1% FS	Interface Conventional 4-Arm Bridge
Encoder/Counter	E7	4	Signal Voltage RS422 / 24 VDC	Resolution 32 bit	Accuracy (±) 0.1% FS	Modes Encoder (SSI, A-Quad-B), Counter (up/down)
L(R)VDT/D	L ¹	4	Frequency 360 Hz to 20 KHz	Resolution 16 bit	Accuracy (±) 0.025% FS	Interface 2 or 3/4 wire
SYN(RSL)/D	S ¹	4	Frequency 50 Hz to 20 KHz	Resolution 16 bit	Accuracy (±) 1 arc-min	Tracking Rate 190 RPS
D/SYN(RSL)	3 ¹ , 4 ¹	1	47 Hz – 10 KHz	Resolution 16 bit	Accuracy (±) 0.067°	Power (max) 3.0 VA / channel
	1 ¹ , 2 ¹	2	47 Hz – 10 KHz	Resolution 16 bit	Accuracy (±) 0.017°	1.5 or 2.2 VA / channel
	6 ¹	3	47 Hz – 10 KHz	Resolution 16 bit	Accuracy (±) 0.1°	0.25 VA / channel
D/L(R)VDT	5 ¹	2 / 4	47 Hz – 10 KHz	Resolution 16 bit	Accuracy (±) 0.1% FS	Power (max) 1.5 VA / channel
	5 ¹	3	47 Hz – 10 KHz	Resolution 16 bit	Accuracy (±) 0.2% FS	0.1 VA / channel
I/O, TTL/CMOS	D7	16	Input Range 0 – 5.5 V	Output level TTL/CMOS	Programmable Input or Output	
I/O, Differential	D8	11 (16) ³	Input Range (422) -10V to +10V	Input Range (485) -7V to +12V	Output Range (422/485) -0.25V to +5V	
	D8	11 (16) ³	Input Range 0 – 60 VDC	Output Range 0 – 60 VDC	Programmable Input or Output	Notes (500 mA – 2 A) (source/sink) Isolated switch (600mA)
I/O, Discrete	K6 (v4)	16	±80V	±80V	±80V	Notes KN=non-latch, KL=latching
	K7 ²	12 (16) ³	±80V	±80V	±80V	Notes KN=non-latch, KL=latching
Relay	KN ² , KL ²	4	Type DPDT (1 CH Form C)	SW Volt/Current 220V / 2A (max)	SW Power (max) 60W / 62.5 VA	Notes KN=non-latch, KL=latching
Serial Communications	P8	4	HW Interface levels support RS-232/422/423(MIL-STD-188C)/485	Message Buffer 16K RX/TX	Data rate (Prog) 1 Mb/s max.	Notes Bosch® IP Core
	P6, PA	4	CAN protocol P6= 2.0A/B / PA=J1939	Message Buffer 16K RX/TX	Data rate (Prog) 1 Mb/s max.	Notes Bosch® IP Core
MIL-STD-1553	N7, N8	2	Operational Modes BC,RT, BM, BM/RT	Onboard RAM 128Kbyte per ch	Bus Coupling Configuration N7 = Transformer / N8 = Direct	
ARINC 429/575	A4	6	Frequency 100 KHz or 12.5 KHz	Input/output RX/TX	Message Buffer 256 word Tx/Rx	
DC Power Supply	V1, V2 ²	1, 2	Voltage Output +/- 15V	VOut Regulation +/- 1%	Current Output +/- 450 mA(max)	
	W1	1	Frequency 47 Hz – 20KHz	Accuracy +/- 3%	Voltage 2 – 115 VRMS	Power 6 VA

Part Number Designation

64CS4 - XX XX XX XX XX X X X X X - XX

SLOT 1, 2 & 3 DEFINITION

Enter either D/S, DLV, S/D, LVD, Multifunction or Ref Module W1 as defined below. See Note

SLOT 4 & 5 DEFINITION

Enter D/S or DLV Module only or Z0 if no module is used in this slot

ON-BOARD REFERENCE SUPPLY (M7)

- 0 = No On-Board Reference Module
- 1 = 2-28Vrms, 360-10kHz Programmable On-Board Ref Module
- 2 = Reserved for future use
- 3 = 115Vrms Fixed, 360-10kHz Programmable On-Board Ref Module

MECHANICAL

F = Front Panel J1-J5 and P2 & P0 I/O; S = Front Panel J1-J5 and P2 I/O (No P0); P = P2 & P0 I/O only; G = P2 I/O only (No P0); W = P With Wedge locks; A = VME64 Blank Front Panel and P2 & P0 I/O only; R = VME64 Blank Front Panel and P2 only (No P0); B = VME64 Front Panel J1-J5, P2 & P0 I/O; T = VME64 Front Panel J1-J5, P2 I/O (No P0); D = VME64 Blank Front Panel, Low profile extractors and P2 & P0 I/O only

ENVIRONMENTAL

C = 0°C to +70°C; H = -40°C to +85°C with Removable Conformal Coating
K = C with Removable Conformal Coating

ETHERNET

0 = No Ethernet; 1 = Front Panel Ethernet Connection; 2 = P0 Ethernet Connection

ENCODERS (used only with S/D or LVDT Module (in slots 1 and/or 2))

0 = No Encoder outputs; 1 = Encoders included for each specified Synchro/LVDT module

±12V DC POWER OPTION

0 = VME Power is used; 1 = VME ±12VDC Power is isolated from PCB power planes.

SPECIAL OPTION CODE (Leave blank for standard)

Note: Enter 'Z0' if slot is not populated and no On-board Reference Supply is chosen. If slot is unpopulated and an On-board Reference Supply is selected, enter either 'W6' if low voltage supply is selected (1), or 'W7' if high voltage supply (3) is selected

For detailed specifications & complete part number designation, visit www.naii.com to download Operations Manual.

For Ordering Information:

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