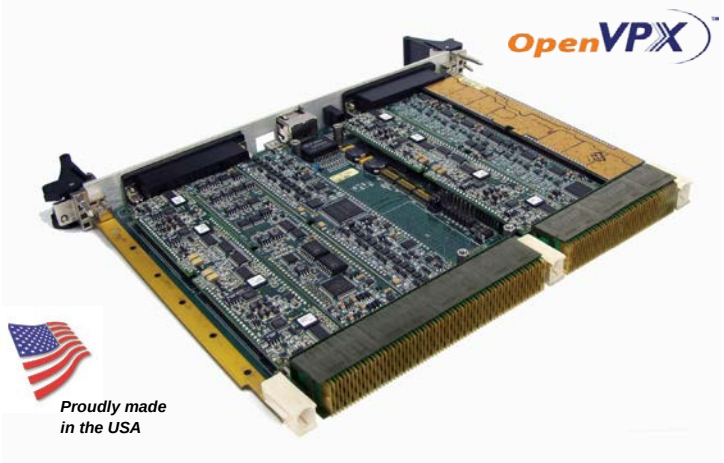
Model 67C3

6U, OpenVPX
MULTI-FUNCTION I/O CARD

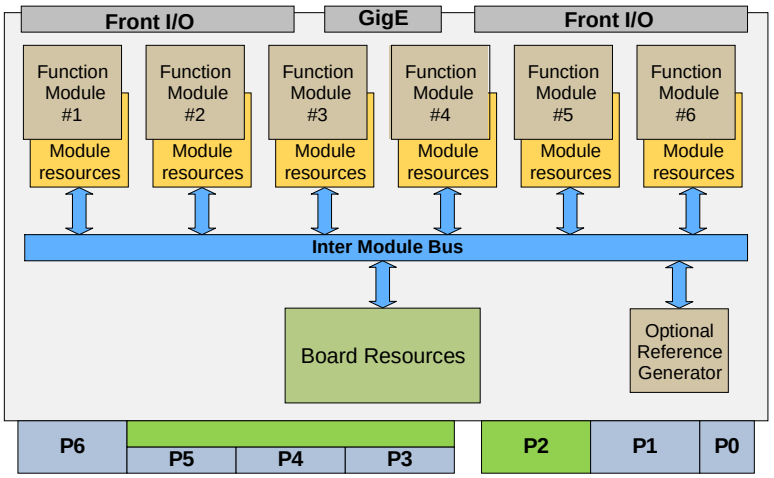
Features

- Multiple functions on a single slot 6U OpenVPX card
- **OpenVPX** Slot Profile: **SLT6-BRG-4F1V2T-10.5.1**
- User can specify up to six different function modules
- Automatic background BIT testing continually checks and reports the health of each channel
- Control via VME or Dual Gig-E interfaces
- PCIe (x1) options or sRIO (1x)
- Front and/or Rear I/O
- Conduction or Convection cooled versions
- Commercial and Rugged applications
- Software Support Kit and Drivers are available



Description

The 67C3 is a single slot 6U OpenVPX (0.8" pitch) multi-function I/O and serial communications card. With VME, Gigabit Ethernet (Gig-E) and High Speed sRIO or PCIe control interface selections, users can confidently choose to take advantage of the OpenVPX form-factor offering higher speed switched fabric communication options.



Backplane Connectors (PCIe or sRIO, VME, 2x Gig-E, User defined I/O)

The motherboard contains six independent module slots, each of which can be populated with a function-specific module, and can now be controlled by the VME, Gig-E and sRIO or PCIe. This enhanced motherboard using multiple DSPs enables higher processing power and dedicated pre-processing and control for each module function. 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 67C3 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.

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General Board Specification

•Power: +5VDC (+/- 12V for select Modules) **•Temp:** 0° C to 70° C or -40° C to 85° C **•Size**: 233mm x 20mm x 160mm (6U)
•VITA Open VPX Base Standard with support for: VITA 46.1 (VMEbus Signal Mapping), VITA 46.3 (Serial RapidIO option)
VITA 46.4 (PCI Express option) and VITA 46.6 (Gig-E)

Available Function Modules

(GEN3 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

A/D Converter	**Module**	**Channels**	**Input Scaling**	**Resolution**	**Accuracy (±)**	**Sampling (programmable)**
	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	**Module**	**Channels**	**Output Range**	**Resolution**	**Accuracy (±)**	**Settling time**
	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
Thermocouple	**Module**	**Channels**	**Update rate**	**Resolution**	**Accuracy**	**Thermocouple Interface**
	G3	6	4.17 – 470 Hz	24-bit	0.75 – 2.0 °C	NIST J,K,T,E,N,B,R,S & ±100 mV
RTD	**Module**	**Channels**	**Update rate**	**Resolution**	**Accuracy**	**Interface**
	G4	6	16.7 Hz/channel	16-bit	(±) 0.05% FS	2, 3 or 4 wire
Strain Gage	**Module**	**Channels**	**Update rate**	**Resolution**	**Accuracy**	**Interface**
	G5[2]	4	4.7 Hz – 4.8 KHz	16-bit	(±) 0.1% FS	Conventional 4-Arm Bridge
Encoder/Counter	**Module**	**Channels**	**Signal Voltage**	**Resolution**	**Modes**	
	E7	4	RS422 / 24 VDC	32-bit	Encoder (SSI, A-Quad-B), Counter (up/down)	
L(R)VDT/D	**Module**	**Channels**	**Frequency**	**Resolution**	**Accuracy**	**Interface**
	L[1]	4	360 Hz to 20 KHz	16-bit	(±) 0.025% FS	2 or 3/4 wire
SYN(RSL)/D	**Module**	**Channels**	**Frequency**	**Resolution**	**Accuracy**	**Tracking Rate**
	S[1]	4	50 Hz to 20 KHz	16-bit	(±)1 arc-min	190 RPS
D/SYN(RSL)	**Module**	**Channels**	**Frequency**	**Resolution**	**Accuracy**	**Power**
	6[1]	3	47 Hz – 10 KHz	16-bit	(±) 0.1°	0.25 VA / channel (max.)
D/L(R)VDT	**Module**	**Channels**	**Frequency**	**Resolution**	**Accuracy**	**Power**
	5[1]	3	47 Hz – 10 KHz	16-bit	(±) 0.2% FS	0.1 VA / channel (max.)
I/O, TTL/CMOS	**Module**	**Channels**	**Input Range**	**Output level**	**Programmable**	
	D7	16	0 – 5.5 V	TTL/CMOS	Input or Output	
I/O, Differential	**Module**	**Channels**	**Input Range (422)**	**Input Range (485)**	**Output Range (422/485)**	
	D8	11 (16)[3]	-10V to +10V	-7V to +12V	-0.25V to +5V	
I/O, Discrete	**Module**	**Channels**	**Input Range**	**Output Range**	**Programmable**	**Notes**
	K6 (v4)	16	0 – 60 VDC	0 – 60 VDC	Input or Output	(500 mA – 2 A) (source/sink)
	K7	12 (16)[3]	±80V	±80V	Input or Output	Isolated switch (600mA)
Relay	**Module**	**Channels**	**Type**	**SW Volt/Current**	**SW Power (max)**	**Notes**
	KN[2], KL[2]	4	DPDT (1 CH Form C)	220V / 2A (max)	60W / 62.5 VA	KN=non-latch, KL=latching
Serial Communications	**Module**	**Channels**	**HW Interface levels support**		**Bit rate (Async/Sync)**	**Tx/Rx Buffer** **Notes**
	P8	4	RS-232/422/423(MIL-STD-188C, unbalanced)/485		1 / 4 Mbit/s per Ch.	32KB Partial modem
	PC	4	Isolated RS-422/485		1 / 4 Mbit/s per Ch.	32KB Partial modem
CANBus	**Module**	**Channels**	**CAN protocol**	**Message Buffer**	**Data rate (Prog)**	**Notes**
	P6, PA	4	P6= 2.0A/B / PA=J1939	16K RX/TX	1 Mb/s max.	Bosch® IP Core
MIL-STD-1553	**Module**	**Channels**	**Operational Modes**	**Onboard RAM**	**Bus Coupling Configuration**	
	N7, N8	2	BC,RT, BM, BM/RT	128Kbyte per ch	N7 = Transformer / N8 = Direct	
ARINC 429/575	**Module**	**Channels**	**Frequency**	**Input/output**	**Message Buffer**	
	A4	6	100 KHz or 12.5 KHz	RX/TX	256 word Tx/Rx	
DC Power Supply	**Module**	**Channels**	**Voltage Output**	**VOut Regulation**	**Current Output**	
	V1, V2	1, 2	± 15V	± 1%	± 450 mA(max)	
AC Reference	**Module**	**Channels**	**Frequency**	**Accuracy**	**Voltage**	**Power**
	W[1]	1	47 Hz – 20KHz	± 3%	2 – 115 VRMS	6 VA (max.)

PART NUMBER DESIGNATION 67C3 – XX XX XX XX XX XX X X X X X X –XX

Slot # 1 2 3 4 5 6

MODULE (SLOT) DEFINITION
Enter Module Designation (i.e.C1) for each slot (1 through 6). Note 1

ON-BOARD REFERENCE SUPPLY (M7)
0 = No On-Board Reference Supply; **1** = 2-28Vrms, 360-10 KHz, Programmable
2 = Reserved for future use; **3** = 115Vrms Fixed, 360-10 KHz, Programmable

MECHANICAL
F = Front Panel (0.8" pitch) J1-J6, and Rear I/O **J** = Front Panel (1" pitch) J1-J6 and Rear I/O Note 2
P = Blank Front Panel (0.8" pitch), Rear I/O only **K** = Blank Front Panel (1" pitch) and Rear I/O Note 2
W = Conduction Cooled with Wedge locks (Rear I/O only)

ENVIRONMENTAL
C = 0 TO 70 °C
H = -40 TO +85 °C with conformal coating
K = C with conformal coating

ETHERNET
0 = No Ethernet; **1** = Front Panel Ethernet Connection; **2** = Rear I/O Ethernet Connection
3 = Dual Ethernet, Port 1 Front, Port 2 Rear **4** = Dual Ethernet, Port 1 & 2 Rear

HIGH SPEED INTERFACE CONNECTIONS
0 = none (VME/Ethernet only); **1** = SRIO Note 2; 2-4 = reserved; **5** = PCIe; 6-8 = reserved

ENCODER OUTPUTS FOR SYNCHRO / RESOLVER MODULES
0 = No Encoder outputs;
1 = Encoders included for each specified Synchro module

SPECIAL OPTION CODE (or leave blank)

Note 1: Enter 'Z0' if slot is **not** populated and no On-board Reference Supply is chosen. If slot #1 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.

Note 2: Contact factory for availability

For Ordering Information:
Phone – 631-567-1100
Fax – 631-567-1823

67C3 Data Sheet Rev A9