

### Features

- Multiple functions on a single slot 3U cPCI card
- User can specify three different function modules
- Control via cPCI Bus and/or Gigabit Ethernet
- Automatic background BIT testing continually checks and reports the health of each channel
- Connections via Front Panel, and/or Rear Panel
- Designed for both Commercial and MIL applications
- Conduction or Convection-cooled versions
- Software Support Kit and Libraries provided

Convection Cooled



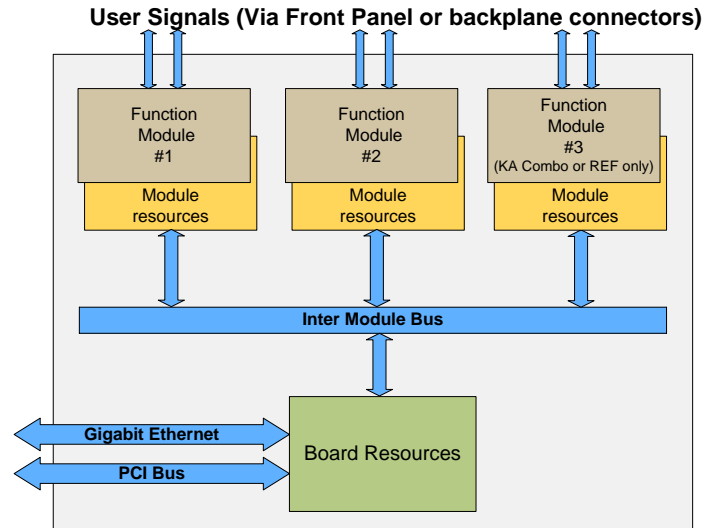
Conduction Cooled

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### Description

The **75C3** is a 3U cPCI multi-function I/O and communications card. The motherboard contains three independent module slots, two of which can be populated with a function-specific module and the third with either a combination module featuring four multiplexed A/D channels and 28 Discrete I/O channels, or with a reference supply.

The enhanced mother-board, using multiple DSPs, enables higher processing power and dedicated control for each 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).



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 +/-12V (select modules)
- **Operating Temp:** 0° C to 70° C or -40° C to 85° C
- **Size:** 100mm x 20mm x 160mm (3U)

## Available Function Modules

**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
	C2	10	±5,10,20 or 40 VDC	16 bit	0.1% FS
	C3	10	0-25 mA	16 bit	0.1% FS
	C4	10	±6.25,12.5,25 or 50 VDC	16 bit	0.1% FS
	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
	F3	10	±5 or 0-5 VDC	16 bit	0.05% FS
	F5	4	±25 or 0-25 VDC	16 bit	0.05% FS
	J3	10	±1.25 or 0-1.25 VDC	16 bit	0.05% FS
	J5	10	±2.5 or 0-2.5 VDC	16 bit	0.05% FS
	J8	4	±20 to ±100 VDC	16 bit	0.15% FS
RTD	G4	6	16.7 Hz/channel	16 bit	(±) 0.05% FS
Strain Gage	G5 <sup>2</sup>	4	4.7 Hz – 4.8 KHz	16 bit	(±) 0.1% FS
Encoder/Counter	E7	4	Signal Voltage RS422 / 24 VDC	32 bit	Encoder (SSI, A-Quad-B), Counter (up/down)
L(R)VDT/D	L <sup>1</sup>	4	Frequency 360 Hz to 20 KHz	16 bit	Accuracy (±) 0.025% FS
SYN(RSL)/D	S <sup>1</sup>	4	Frequency 50 Hz to 20 KHz	16 bit	Accuracy (±) 1 arc-min
D/SYN(RSL)	6 <sup>1</sup>	3	Frequency 47 Hz – 10 KHz	16 bit	Accuracy (±) 0.1°
D/L(R)VDT	5 <sup>1</sup>	3	Frequency 47 Hz – 10 KHz	16 bit	Accuracy (±) 0.2% FS
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) <sup>3</sup>	Input Range (422) -10V to +10V	Input Range (485) -7V to +12V	Output Range (422/485) -0.25V to +5V
I/O, Discrete	K6 (v4) K7	16 12 (16) <sup>3</sup>	Input Range 0 – 60 VDC ±80V	Output Range 0 – 60 VDC ±80V	Programmable Input or Output Notes (500 mA – 2 A) (source/sink) Isolated switch (600mA)
Relay	KN <sup>2</sup> , KL <sup>2</sup>	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
CANBus	P6, PA	4	CAN protocol P6= 2.0A/B / PA=J1939	Onboard RAM 128Kbyte per ch	Bus Coupling Configuration N7 = Transformer / N8 = Direct
MIL-STD-1553	N7, N8	2	Operational Modes BC,RT, BM, BM/RT	Input/output RX/TX	Message Buffer 256 word Tx/Rx
ARINC 429/575	A4	6	Frequency 100 KHz or 12.5 KHz	VOut Regulation +/- 1%	Current Output +/- 450 mA(max)
DC Power Supply	V1, V2	1, 2	Voltage Output +/- 15V	Accuracy +/- 3%	Voltage 2 – 115 VRMS
AC Reference	W <sup>1</sup>	1	Frequency 47 Hz – 20KHz	Accuracy +/- 2%	Power 6 VA
A/D & Discrete I/O (Slot 3 only)	KA	A/D Channels 4(multiplexed) I/O Channels 28	Input Scaling ±10 VDC Input Range 0 – 50 VDC	Resolution 14 bit Output Range 0 – 50 VDC	Accuracy 0.1% FS Format 12 In /12 Out / 4 Prog.
Reference (Slot 3 only)	W6 W7	1 1	Frequency 360 Hz – 10KHz 360 Hz – 10KHz	Accuracy +/- 2% +/- 2%	Voltage 2 – 28 Vrms 115 Vrms

### Part Number Designation

75C3 – XX XX XX X X X X –XX

Slot # 1 2 3

#### MODULE (SLOT) 1 & 2 DEFINITION

Enter Module Designation (i.e. C1) for each one of slots 1 & 2.  
 Enter "Z0" if slot is not populated

#### MODULE (SLOT) 3 DEFINITION

SLOT 3 can only accept either Module 'KA' or On-Board Reference (W6, W7).  
 Enter "Z0" if slot is not to be populated.

#### MECHANICAL

P = Rear (J2) I/O only      F = Front Panel (J3 & J4) I/O only (PXI chassis compatible)  
 W = P with Wedgelocks      B = Front Panel (J3 & J4) and Rear (J2) I/O

#### ENVIRONMENTAL

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

#### ETHERNET

0 = No Ethernet; 2 = Rear I/O Ethernet Connection

#### ENCODER OUTPUTS FOR SYNCHRO / RESOLVER MODULES

0 = No Encoder outputs  
 1 = Encoder outputs included for each specified Syn/Rsl measurement module (slot 3 cannot be populated)

#### SPECIAL OPTION CODE (or leave blank)

For detailed specifications & complete part number designation, visit [www.naii.com](http://www.naii.com) to download Operations Manual.

#### For Ordering Information:

Phone – 631-567-1100

Fax – 631-567-1823