Model 75C5

3U, cPCI, MULTI-FUNCTION I/O CARD

Features

- Multiple functions on a single slot 3U cPCI card
- User can specify three different function modules
- Control via either cPCI Bus and/or Gigabit Ethernet
- Master (PCI) Bus capable
- Automatic Background Built-In-Test (module dependent)
- Connections via Front panel, Rear panel, or both
- Designed for both Commercial and MIL applications
- Conduction or Convection-cooled versions
- Software Support Kit and Libraries provided

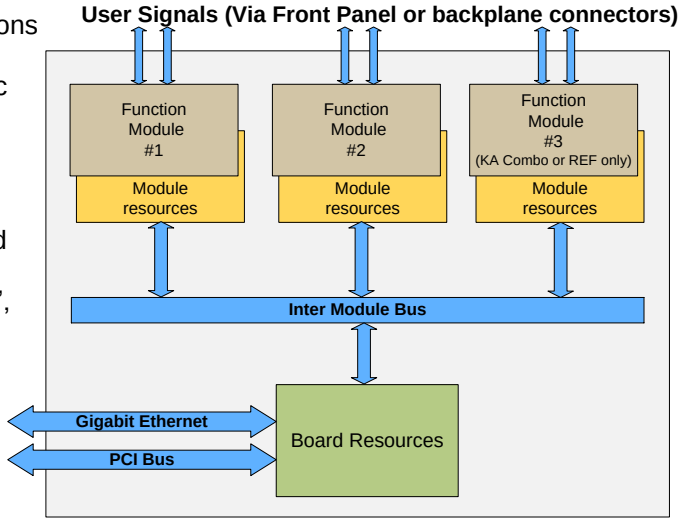
Conduction Cooled

Convection Cooled

Proudly made in the USA

Description

The 75C5 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 multiplexed A/D or serial communications channels and Discrete I/O programmable channels, or with a reference supply. The enhanced Generation 3 (GEN3) motherboard, using multiple DSP, allows for higher processing power and dedicated control for each module. In addition, the 75C5 can be configured for Master Bus support – as the "Master", the 75C5 can accept/communicate via NAI protocol Ethernet messages for control/managing data from itself, and/or, from other NAI cPCI cards in a single chassis (conduit for multi-board communications, without a Single Board Computer (SBC) required in the chassis, via external host Gig-E control).



This unique design eliminates the need for multiple, specialized single function cards by providing a single board solution for a broad assortment of I/O, Synchro/Resolver, LVDT and other signal interface functions that can be controlled either via the cPCI Bus or 10/100/1000Base-T Ethernet. The available functions are listed on the following page. Additionally, the 75C5 incorporates serial communications modules such as RS232/422/423/485, MIL-STD-1553, CANBus and ARINC 429. Our approach increases packaging density, saves enclosure slots, reduces power consumption and adds continuous background built-in-test (BIT). A Software Support Kit (SSK) is provided.

BIT, a highly beneficial feature, is module specific, always enabled and continually checks the health of each channel ensuring optimal system performance. A possible fault is immediately reported and the specific channel is identified, mitigating risk of equipment downtime. Testing is totally transparent to the user, requires no external programming, has no effect on the standard operation of the card and can typically be disabled on a per-channel basis.

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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

(GEN3 (A/E size) Platforms)

Note 1 – Indicates wide selection (See part number in Operations Manual)
Note 2 – Contact factory for availability
Note 3 – Additional channels on some platform front I/O (check pinouts)

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 – 4.8KHz	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[2]	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**	**Bit rate (Async/Sync)**	**Tx/Rx Buffer**	**Notes**
	P8	4	RS-232/422/423(188C, unbalanced)/485	1 / 4 Mbit/s per Ch.	32KB	Partial modem
	PC[2]	4	Isolated RS422/485	1 / 4 Mbit/s per Ch.	32KB	Partial modem
Serial Communications & Discrete I/O	**Module**	**Channels**	**HW Interface levels**	**(422/485 Async/Sync)**	**Bit rate (423)**	**Tx/Rx Buffer**
	PD	2 Serial 18 Discrete	RS-422/485/423 Programmable I/O; 35V 100 mA (output source, sink or push-pull, special function ASK[2] I/O capability)	1 / 4 Mbit/s per Ch.	250 Kbps per Ch.	2KB Tx / Rx
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**	**Coupled**	
	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.)
A/D & Discrete I/O (Slot 3 only)	**Module**	**A/D Channels**	**Input Scaling**	**Resolution**	**Accuracy**	**Sampling**
	KA	4(multiplexed)	± 10 VDC	14-Bit	± 0.1% FS	3 KHz Max
		I/O Channels	**Input Range**	**Output Range**	**Format**	**Resolution**
		28	0 – 50 VDC	0 – 50 VDC	12 In/12 Out/4 Prog.	12-bit
Serial & Discrete I/O (Slot 3 only)	**Module**	**Channels**	**HW Interface levels**	**(422/485 Async/Sync)**	**Bit rate (423)**	**Tx/Rx Buffer**
	KB	2 Serial 14 Discrete	RS-422/485/423 Programmable I/O; 35V 100 mA (output collector, low side drive only)	1 / 4 Mbit/s per Ch.	250Kbit/s per Ch.	2KB Tx / Rx
Reference [v9] **(Slot 3 only)**	**Module**	**Channels**	**Frequency**	**Accuracy**	**Voltage**	**Power**
	W6	1	47 Hz – 20 KHz	± 2%	2 – 28 Vrms	5 VA (max)
	W7	1	47 Hz – 2 KHz	± 5%	115 Vrms	5 VA (max)

PART NUMBER DESIGNATION

75C5 – 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', COMBO 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 ° **K** = C with conformal coating
H = -40 TO +85 °C with conformal coating

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

MASTER/SLAVE & I/O PINOUT CONFIGURATION
0 = Standard pinout optimized for modules 1 & 2 (Slave Bus) **2** = Master Bus & pinout "0" configuration
1 = Pinout optimized for module 3 (Slave Bus) **3** = Master Bus & pinout "1" configuration
9 = Special pinout configuration (contact factory – see special code option)

SPECIAL OPTION CODE (or leave blank)

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

For Ordering Information:
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