

Features

- Multiple I/O and serial communication functions on a single slot, half size PCIe (x1) card
- User can specify three different function modules
- Automatic background BIT testing continually checks and reports the health of each channel
- Connections via 78-pin D-Sub panel connector
- Designed for both Commercial and Rugged applications
- Software Support Kit and Drivers available

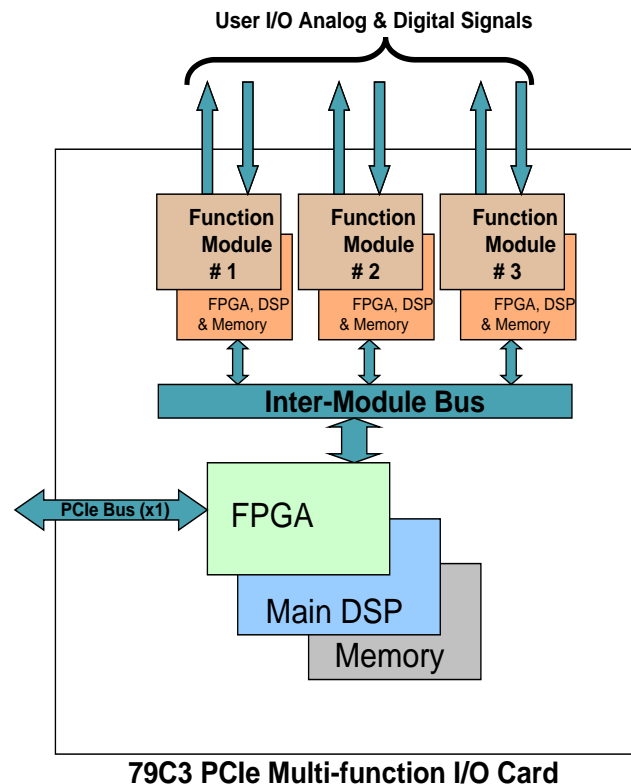


Description

The 79C3 is a PCIe (x1), multi-function I/O and communications card. The motherboard contains three independent module slots, each of which can be populated with a function specific module. 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 79C3 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)
- Size: 106.7mm x 20mm x 167.8mm (half-length PCIe)

- Operating Temp: 0° C to 70° C or -40° C to 85° C

Available Function Modules

(GEN3 Platforms)

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

Note 2 – Contact factory for availability

	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	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	-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	±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 RS422/485		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 – 20 KHz	± 3%	2 – 115 VRMS	6 VA (max)

PART NUMBER DESIGNATION

79C3 – XX XX XX X X – XX

Slot # 1 2 3

MODULE (SLOT) DEFINITION

Enter module designation (i.e.C1) for each slot 1, 2, 3
Enter "Z0" if slot is not populated.

ENVIRONMENTAL

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

K = C with conformal coating

ENCODER OUTPUTS FOR SYNCHRO / RESOLVER MODULES

0 = No Encoder outputs;

1 = Encoders included for each specified Synchro module

SPECIAL OPTION CODE (or leave blank)

For Ordering Information:

Phone – 631-567-1100

Fax – 631-567-1823