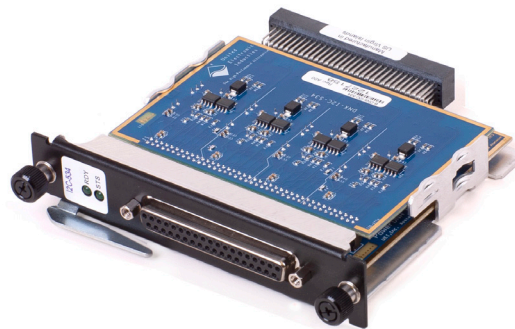


DNx-I2C-534

Ultra secure four port I²C interface

- Fully compatible with RACKtangle, FlatRACK and Cube chassis
- Four independent master/slave ports
- Fully conforms to UM10204 at SM, FM and FM+ bit rates
- Guardian read-back of master transmissions confirms validity of data
- Full data path integrity confirmed with CRC
- Standard dSub 37 connectivity
- Includes all software including C source code
- No royalties or license required
- SMBus hardware support

10-Year
Availability
Guarantee



The DNR-I2C-534 (shown) is designed for use in DNR-series RACKtangle chassis. The DNA/DNF-I2C-534 are used in DNA series Cubes and DNF series FLATRacks respectively.

General Description:

The DNR-I2C-534, DNF-I2C-534 and DNA-I2C-534 are four port I²C interfaces designed for use with UEI's popular RACKtangle, FlatRACK and Cube chassis respectively. They are fully supported by both PowerDNA (hosted) and UEIPAC (standalone/embedded) options of the chassis.

The I²C interface is compliant with UM10204 and supports Standard-Mode (100 kbit/s), Fast-Mode (400 kbit/s) and Fast-Mode+ (1 Mbit/s). Additionally a "custom" bit rate mode is available for non-standard devices and supports bit rates from 2 kHz to 100 kHz. Inputs and outputs are 3.3/5 V software selectable and are brought out through a dSub 37 connector. The DNA-CBL-COM series brings the four I²C ports out to 9-pin dSub connectors. The DNA-CBL-I2CM-3M is a 3 meter cable that brings each port out to an RJ-10 connector.

Each of the four ports has both master and slave capability. The SCL and SDA pins include 4.99 kOhm fixed pull up resistors to ensure reliable operation. For higher speed operations an optional 1.5 kOhm resistor may be switched in parallel with the 4.99 kOhm creating a 1.15 kOhm pull-up resistance.

The standard I²C transaction includes sending a packet and then receiving an acknowledge. Failure to receive an ACK is an error condition. However, some I²C devices do not respond with an ACK. The DNx-I2C-534 can be set in a mode where it does not wait for an ACK, and does not generate an error message if the standard ACK is not received.

The board is part of UEI's popular Guardian series. The master of each port can be connected to slave port via on-board switches, or additional wiring to the slave I²C device pins. This allows the system to confirm the correct data has been sent out from each master.

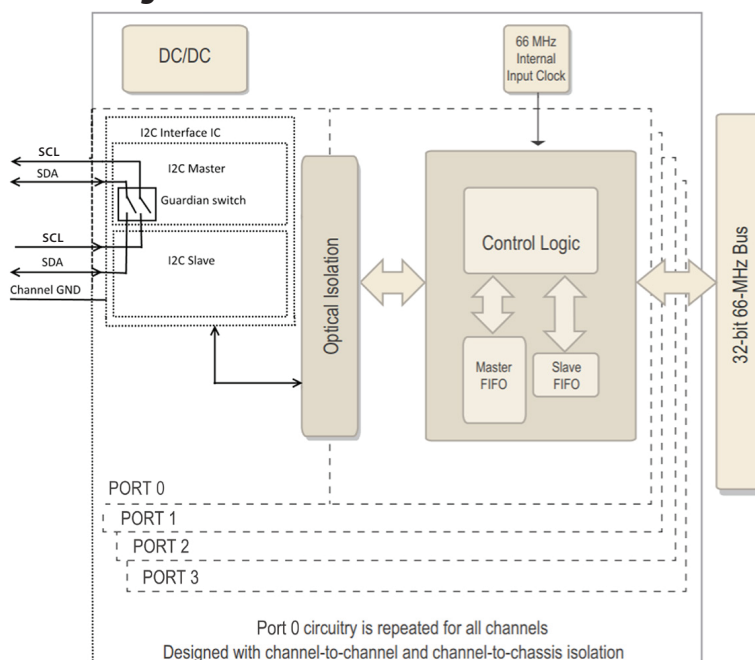
To ensure data security and reliability from the host PC and/or embedded CPU, an optional CRC checksum can be added to each I²C transaction written. This checksum remains with the data as it moves through the system and is checked by the DNx-I2C-534 FPGA prior to it being written to the output drivers. On data reads, with the CRC enabled, the board's FPGA adds a CRC checksum to the data and this is confirmed by the CPU prior to presenting the data to the application software. Note the FPGA is the last device in the data chain and reads and writes directly to the I²C receiver/transmitter chip.

The DNx-I2C-534 includes all software required for operation in both UEIPAC and PowerDNA chassis deployments. There are no license or royalty payments ever required and software revision updates are always available on the UEI web site at no charge.

Technical Specifications:

General Serial Specifications	
Number ports	4, each provides Master/Slave/Bus monitor capability
Serial Interfaces	I ² C, complies with UM10204 specification
Maximum SCL speed:	1 Mbit/s (compliant with I ² C SM: 100kb, FM: 400 kb and FM+: 1 Mb)
Logic Level	5 V / 3.3 V compatible
Protection	350 V port-to-port; 15 kV ESD protection
Baud rate base clock	66 MHz, 24 MHz, custom
FIFO Size	Master Mode: 1k / 1k input / output Slave Mode: 512 / 512 input / output
General and Environmental	
Isolation	350 Vrms port-to-port and port-to-chassis
Power Consumption	< 4 W
Operating Temp. (tested)	-40 °C to +85 °C
Operating Humidity	95%, non-condensing
Vibration	IEC 60068-2-6 IEC 60068-2-64
Shock	IEC 60068-2-27
MTBF	350,000 hours

Block Diagram



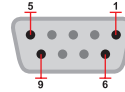
Pinout: (dB37F)

GND-3	1	20	SCLS-3
SDAS-3	2	21	GND-3
GND-3	3	22	SCLM-3
SDAM-3	4	23	GND-3
Vcc-3	5	24	Vcc-2
GND-2	6	25	SCLS-2
SDAS-2	7	26	GND-2
GND-2	8	27	SCLM-2
SDAM-2	9	28	GND-2
GND-1	10	29	SCLS-1
SDAS-1	11	30	GND-1
GND-1	12	31	SCLM-1
SDAM-1	13	32	GND-1
Vcc-1	14	33	Vcc-0
GND-0	15	34	SCLS-0
SDAS-0	16	35	GND-0
GND-0	17	36	SCLM-0
SDAM-0	18	37	GND-0
Rsvd	19		

Pinout: (DNA-CBL-I2CM-3M: RJ-10, each of 4 connectors)

Pin	Function
1	GND
2	SDAM (Serial Data)
3	SCLM (Serial Clock)
4	GND

Pinout: (DNA-CBL-COM, each of 4 connectors)



SCLS	1	6	tbd
rsvd	2	7	SDAM
rsvd	3	8	SCLM
SDAS	4	9	rsvd
GND	5		

SDAS	1	6	SCLM
rsvd	2	7	rsvd
rsvd	3	8	SDAM
GND	4	9	SCLS
rsvd	5		

Connectors 1 & 3
SDAM and SCLM are for use with the I2C-534 when acting as an I²C Master. SCLS and SDAS are for operation as an I²C slave. Please do not connect signals to rsvd pins.

Connectors 2 & 4
SDAS and SCLM are for use with the I2C-534 when acting as an I²C Master. SCLS and SDAS are for operation as an I²C slave. Please do not connect signals to rsvd pins.

Order Info:

Part Number	Description
DNR-I2C-534	Four port I ² C interface for RACKtangle chassis (e.g. DNR-12-1G or UEIPAC 1200R)
DNF-I2C-534	Four port I ² C interface for FlatRACK chassis
DNA-I2C-534	Four port I ² C interface for Cube chassis
DNA-CBL-COM	1.3 meter DB-37 to quad DB9F cable
DNA-CBL-I2CM-3M	3 meter DB-37 to quad RJ-10 cable