DNA/DNR/DNF-429-516 series

16-channel TX ARINC 429 Interface

- DNA-429-516 for use in "Cubes", DNF-429-516 for FLATRACK and DNR-429-516 for use in RACKtangle™ I/O chassis
- 16 ARINC 429 transmit channels
- High (100 kHz) or low (12.5 kHz) speed selectable by channel.
- Hardware Label filtering and TX scheduler
- Includes support for ARINC-615 protocol
- 350 Vrms Isolation (in 8 groups of 2-channels)
- Guardian Series Diagnostics:
  - On-board 429 RXs allow read-back on each channel

10-Year Availability Guarantee

[DNR-429-516 Shown]

General Description

The DNA/DNR/DNF-429-516 are 16 channel ARINC 429 communications interfaces for UEI's popular "Cube" / RACKtangle / FLATRACK I/O chassis respectively. The DNx-429-516 offers 16 TX channels. All boards are fully compliant with the ARINC 429 spec and support both high speed (100 kHz) and low speed (12.5 kHz) operation. The channel speed is software selectable on a channel by channel basis. Data integrity, even when all channels are set in high speed mode is assured with the use of 256 word FIFOs on all channels. The board is part of UEI's Guardian series and provides a diagnostic, on-board ARINC-429 receiver connected to each transmit channel. This allows the application to confirm the correct information has been written to the ARINC-429 bus.

Channels may be set to transmit asynchronously or based on a hardware controlled scheduler. Each channel supports a transmission table that allows up to 256 unique schedules. Transmission schedule resolution is 100 microsecond. There is also a TX mode where a label is transmitted only upon receipt of data from a preprogrammed label. Asynchronous (non-scheduled) data may be sent with three priorities. High priority data is sent immediately upon completion of the current transmission, regardless of scheduled messages. Data sent with standard priority is transmitted during times when no scheduled data is being sent. Finally, the lowest priority is data streamed from a 256 word FIFO which is sent when no scheduled, high or standard priority data is being transmitted.

Software for the DNx-429-516 is included with the board. The UEIDAQ Framework provides a comprehensive, easy to use API supporting all popular Windows programming languages. Factory written and supported drivers are also included for Linux and are available for other popular reaj-time operating systems including QNX and VxWorks. Finally, the UEIDAQ Framework supplies complete support for those creating applications in all popular data acquisition and control packages, including LabVIEW, MATLAB/Simulink, as well as any application which supports ActiveX or OPC servers.

Technical Specifications:

| Channel Configurations	
Number of channels	16 Transmit channels
ARINC Compliance	Fully compliant with ARINC 429
Total RX loads	20 per channel, 128 maximum per board
Transmit Specifications	
Data rate	100 kHz or 12.5 kHz selectable per channel
FIFO size	256 words
Transmit modes	Scheduled or asynchronous. TX outputs may be disabled allowing a channel to be used as a Input.
Scheduler specifications	
timing resolution	100 microseconds
table size	Schedule up to 256 labels per channel
Minor/Major Frames	16 Minor frames with double buffering of data array
Asynchronous TX modes	
High priority	transmit immediately upon completion of current transmission regardless of schedule
Standard priority	transmit when no scheduled data
FIFO based	transmit when no scheduled, standard or high priority data is being sent
General Specifications	
Isolation	350 Vrms. Isolation provided in channel pairs. Channels 0-1, 2-3,...14-15 share a common ground
Operating temperature	tested -40 ℃ to +85 ℃
Vibration IEC 60068-2-6 IEC 60068-2-64	5 g, 10-500 Hz, sinusoidal 5 g (rms), 10-500 Hz, broad-band random
Shock IEC 60068-2-27	50 g, 3 ms half sine, 18 shocks @ 6 orientations 30 g, 11 ms half sine, 18 shocks @ 6 orientations
Humidity	0 to 95%, non-condensing
MTBF	470,000
Power consumption	7 Watt, maximum

Block Diagram (Single channel)
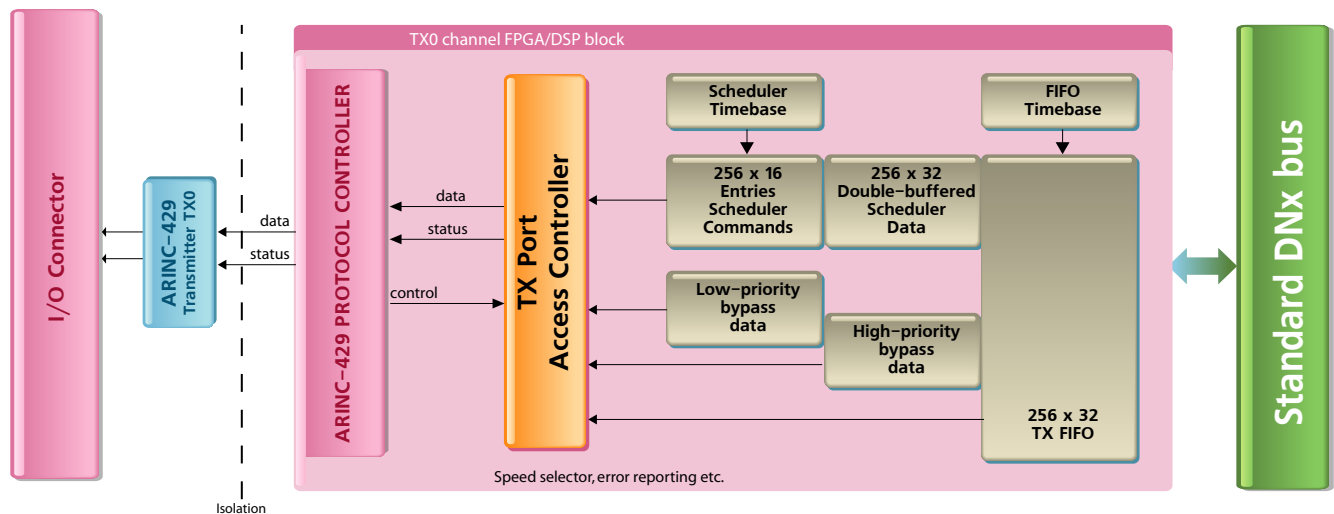
Pinout Diagram:

(I/O Connectors are female 62-pin "D" type)

Pinout Diagram: DB-62 (female)
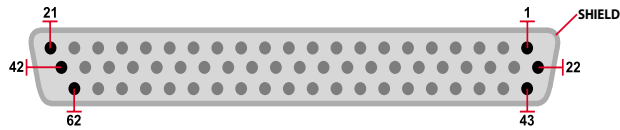
Pin	Signal	Pin	Signal	Pin	Signal
1	TX-0-B	22	TX-0-A	43	TX-1-A
2	rsvd	23	rsvd	44	TX-1-B
3	GND CH2/3	24	GND CH0/1	45	TX-3-A
4	TX-2-B	25	TX-2-A	46	TX-3-B
5	rsvd	26	rsvd	47	TX-4-A
6	TX-5-B	27	TX-5-A	48	TX-4-B
7	rsvd	28	rsvd	49	GND CH 4/5
8	TX-6-B	29	TX-6-A	50	GND CH 6/7
9	TX-7-B	30	TX-7-A	51	rsvd
10	TX-8-B	31	TX-8-A	52	rsvd
11	TX-9-B	32	TX-9-A	53	GND CH 8/9
12	rsvd	33	rsvd	54	GND CH 10/11
13	TX-10-B	34	TX-10-A	55	TX-11-A
14	rsvd	35	rsvd	56	TX-11-B
15	TX-12-B	36	TX-12-A	57	TX-13-A
16	rsvd	37	rsvd	58	TX-13-B
17	GND CH 14/15	38	GND CH 12/13	59	TX-14-A
18	TX-15-B	39	TX-15-A	60	TX-14-B
19	rsvd	40	rsvd	61	rsvd
20	rsvd	41	rsvd	62	rsvd
21	rsvd	42	rsvd		

Ordering Guide

Part Number	Description
DNA/DNR/DNF-429-516	ARINC 429 Interface with 16 TX channels (order DNA-429-516 for "Cubes", DNR-429-516 for RACKtangle, DNF-429-516 for FLATRACK I/O chassis)
DNA-STP-62	62 connection screw terminal panel
DNA-CBL-62	62 conductor, 3 foot shielded round cable