

DNA/DNR/DNF-429-5xx series

12-channel ARINC 429 Interface

- DNA-429-5xx for use in "Cubes", DNF-429-5xx for FLATRACK and DNR-429-5xx for use in RACKtangle™ I/O chassis
- 12 ARINC 429 channels
- 2 configurations 6 TX/6 RX or 12 RX channels
- High (100 kHz) or low (12.5 kHz) speed selectable by channel.
- Hardware Label filtering
- Hardware TX scheduler (100 μs timing resolution)
- Automatic timestamping of RX data (if desired)
- Powerful API included

10-Year
Availability
Guarantee



General Description

The DNA/DNR/DNF-429-5xx are 12 channel ARINC 429 communications interfaces for UEI's popular "Cube" / RACKtangle / FLATRACK I/O chassis respectively. The DNX-429-566 offers 6 TX / 6 RX while the 429-512 provides 12 RX 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 in banks of either two or three channels. Data integrity, even when all channels are set in high speed mode is assured with the use of 256 word FIFOs on all RX and TX channels. The DNX-ARINC-429-566 includes support for Williamsburg / ARINC-615 protocol.

Receive channels include the ability to filter Labels so that only data from selected channels is captured. The filter may be set to forward data from between one and 255 Labels, or may be disabled so all data is captured, regardless of source. The user may also select on a label by label basis whether all data is forwarded or only data which has changed since the last transmission. Each channel may be set such that data Receive filtering is also supported based on the Source/Destination Identifier (bits 9 & 10). Words that match the desired SDI are forwarded while those that do not are ignored. Each received word may also be time stamped with the date and time of reception (10 μs resolution). Parity errors may either be flagged and errant data trapped at the board level, or RX channels may be configured to forward data with an illegal parity bit.

Transmit channels may be set to transmit asynchronously or based upon 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 DNA/DNR-429 series is provided in the UEI Framework. The framework provides a comprehensive, easy to use API supporting all popular Windows programming languages as well as supporting programmers using Linux and most real-time operating systems including QNX, RTX, RT Linux and more. Finally, the framework supplies complete support for those creating applications in all popular data acquisition and control packages, including LabVIEW and MATLAB/Simulink, as well as any application which supports ActiveX or OPC servers.

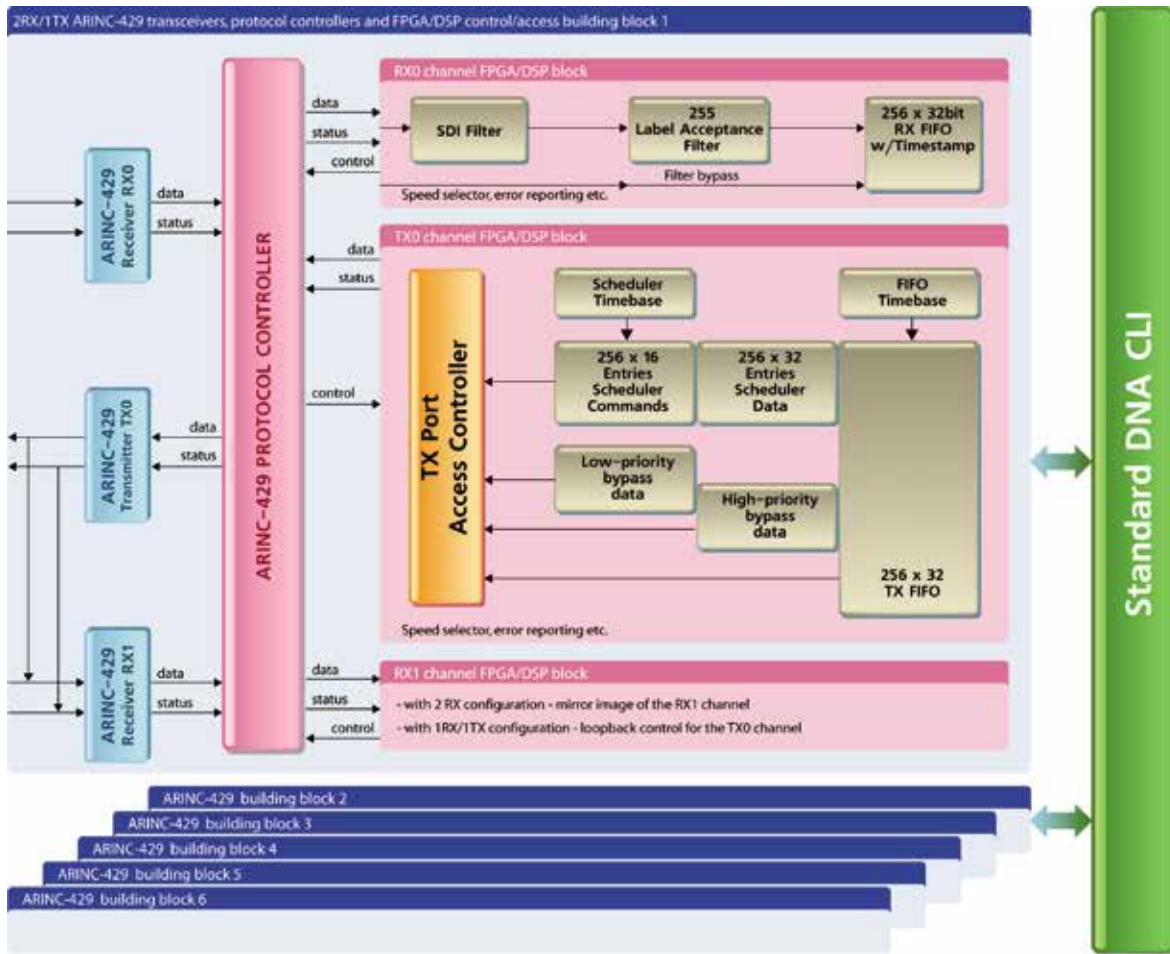
Technical Specifications:

Channel Configurations	
Number of channels	12
DNA-429-566	6 TX and 6 RX
DNA-429-512	0 TX and 12 RX
ARINC Compliance	Fully compliant with ARINC 429
Digital outputs	1 current sinking, FET based
Digital output drive	350 mA max, (500 mA resettable fuse)
Receive Specifications	
Data rate	100 kHz or 12.5 kHz selectable per port
FIFO size	up to 256 32-bit words, user selectable
Receive filter size	1 to 255 Labels or disabled
SDI filter	enabled or disabled
New data only filter	enabled or disabled by label or globally
Parity checking	enabled or disabled
Date/Time stamping	enabled or disabled by label or globally
Transmit Specifications	
Data rate	100 kHz or 12.5 kHz selectable per port
FIFO size	256 words
Transmit modes	Scheduled or asynchronous
Scheduler specifications	
timing resolution	100 microseconds
table size	Schedule up to 256 labels per channel
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	
Loop back testing	Internal loop back connections on the DNX-429-566 allow automatic self-test
Operating temperature	tested -40 °C to +85 °C
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	3.5 Watt, maximum

Ordering Guide

Part Number	Description
DNA/DNR/DNF-429-566	ARINC 429 Interface with 6 TX and 6 RX channels (order DNA-429-566 for "Cubes", DNR-429-566 for RACKtangle, DNF-429-566 for FLATRACK I/O chassis)
DNA/DNR/DNF-429-512	ARINC 429 Interface with 12 RX channels (order DNA-429-512 for "Cubes", DNR-429-512 for RACKtangle, DNF-429-512 for FLATRACK I/O chassis)
DNA-STP-37	37 connection screw terminal panel
DNA-CBL-37S	37 conductor, 3 foot shielded round cable
DNA-CBL-37	37 conductor, 3 foot ribbon cable

Block Diagram



Pinout Diagrams:

(I/O Connectors are female 37-pin "D" type)

TX-A-0	1		
RX-A-0	2	20	TX-B-0
TX-A-1	3	21	RX-B-0
RX-A-1	4	22	TX-B-1
Gnd	5	23	RX-B-1
TX-A-2	6	24	Trig-In
RX-A-2	7	25	TX-B-2
TX-A-3	8	26	RX-B-2
Clk Out	9	27	TX-B-3
RX-A-3	10	28	Gnd
TX-A-4	11	29	RX-B-3
RX-A-4	12	30	TX-B-4
TX-A-5	13	31	RX-B-4
Gnd	14	32	TX-B-5
RX-A-5	15	33	Rsvd-In
Rsvd-Out	16	34	RX-B-5
Dout1	17	35	Dout0
+5Vdc	18	36	Dout2
nc	19	37	Gnd

DNA-429-566

RX-A-1	1		
RX-A-0	2	20	RX-B-1
RX-A-3	3	21	RX-B-0
RX-A-2	4	22	RX-B-3
Gnd	5	23	RX-B-2
RX-A-5	6	24	Trig-In
RX-A-4	7	25	RX-B-5
RX-A-7	8	26	RX-B-4
Clk Out	9	27	RX-B-7
RX-A-6	10	28	Gnd
RX-A-9	11	29	RX-B-6
RX-A-8	12	30	RX-B-9
RX-A-11	13	31	RX-B-8
Gnd	14	32	RX-B-11
RX-A-10	15	33	Rsvd-In
Rsvd-Out	16	34	RX-B-10
Dout1	17	35	Dout0
+5Vdc	18	36	Dout2
nc	19	37	Gnd

DNA-429-512