DESCRIPTION

The Data Concentrator Unit "DCU-4280" is a Commercial Off-The Shelf (COTS) conduction cooled embedded computer designed for rugged environments.

The DCU-4280 combined with Trillium Aerospace Inc. application specific software and hardware specific API's provides an easy solution for any ARINC 429 and Avionics Discrete interface. With our software solution, all the basic programming of the DCU-4280 is accomplished through the units' web GUI.

ARCHITECTURE

The DCU-4280 is an Intel quad core Single Board Computer with a dedicated rugged wide range power supply and an ARINC 429 transceiver board. The DCU-4280 also incorporates 8 programmable avionics discrete I/O Ports and an IRIG timer.

FEATURES & FUNCTIONS

- Robust and rugged computer system.
- 1.92 GHz Intel Quad Core Processor.
- 2GB onboard 64-bit DDR3L RAM.
- 16GB eMMC Storage Device.
- Embedded Linux operating system.
- Ethernet
    - 10/100/1000 ethernet port.
- USB
    - 1 USB 2.0 port.
- Avionics A429 data buss I/O.
    - -0402 = 4R/2T, -0804 = 8R/4T A429 ports
    - A429 Bus combining.
    - A429 Custom label creation.
    - A429 Bus speed change, (Lo to Hi / Hi to Lo).
    - A429 Bus filtering.
    - A429 Bus label change.
    - A429 Bus label rate change.
    - A429 SDI change (Q4 2018).
    - A429 SSM change (Q4 2018).
    - A429 to Discrete out (Q4 2018).
- Avionics Discrete I/O
    - 8 programmable (Input or Output)
    - Input: Open / Ground.
    - Output: Open / Ground or 28V / Open (Sink: 200 mA max).
    - Discrete to A429 (Q4 2018).
    - Discrete input combining (Logic Gate Function) to discrete output (Q4 2018).

- IRIG Input / Output
    - A/B Format with PWCM TTL signal.
    - A/B Format with AM signal (Input only).
    - Pulse Per Second TTL.
- Status Indication
    - LED (Green) – Power good.
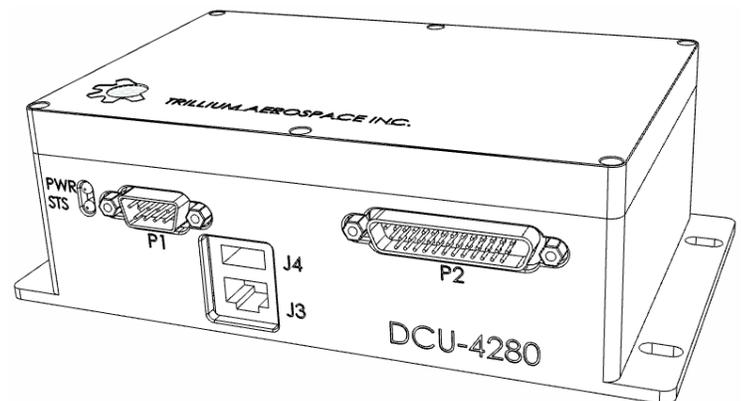   - LED (Amber) – LRU Status Indication.

MECHANICAL

- Size: 7.00" x 3.95" x 2.18".
- Weight: 1.61 Lbs.
- Rugged two-piece CNC case, 6061 Aluminum.
- Anodized black finish.

ELECTRICAL

- Voltage range: 18VDC – 75VDC.
- Current draw (Max): 0.22A @ 28VDC.
- Power consumption (Max): 6.15 Watts.

WARRANTY

Two Year Warranty from date of purchase.

Trillium Aerospace Inc.

PART NUMBERS

- DCU-4280 LRU
  - A429 4R/2T, 8 I/O Discrete & 1 IRIG.
    PN: P099-0402-08
  - A429 8R/4T, 8 I/O Discrete & 1 IRIG.
    PN: P099-0804-08
- DCU-4280 Installation Kit.
  - PN: P099-0402-200
- DCU-4280 Base Core / Configuration Software.
  - Core Software
    PN: P099-0402-300

FRONT PANEL CONNECTORS

P1	Power and Control	DB9M
P2	Data	DB44M
J3	10/100/1000 Ethernet	RJ45
J4	USB	Type A

CONNECTOR PIN OUT

P1: POWER

PIN	FUNCTION	NOTES
1	POWER INPUT (18-75 VDC)	
2	DCU REMOTE ON	
3	RESERVED	
4	RESERVED	
5	DC GROUND	
6	POWER INPUT (18-75 VDC)	
7	RESERVED	
8	RESERVED	
9	DC GROUND	

P2: DATA AND AVIONICS DISCRETES

PIN	FUNCTION	NOTES
1	DISCRETE I/O 00	
2	DISCRETE I/O 01	
3	DISCRETE I/O 02	
4	DISCRETE I/O 03	
5	*RESERVED*	*Do Not Connect.*
6	*RESERVED*	*Do Not Connect.*
7	ARINC RX GROUND	
8	ARINC 429 RX0A	
9	ARINC 429 RX1A	
10	ARINC 429 RX2A	
11	ARINC 429 RX3A	
12	ARINC 429 RX4A	-0804 Only
13	ARINC 429 RX5A	-0804 Only
14	ARINC 429 RX6A	-0804 Only
15	ARINC 429 RX7A	-0804 Only
16	DISCRETE I/O 04	
17	DISCRETE I/O 05	
18	DISCRETE I/O 06	

P2: DATA AND AVIONICS DISCRETES (CONT.)

PIN	FUNCTION	NOTES
19	DISCRETE I/O 07	
20	DISCRETE GROUND	
21	*RESERVED*	*Do Not Connect.*
22	*RESERVED*	*Do Not Connect.*
23	ARINC 429 RX0B	
24	ARINC 429 RX1B	
25	ARINC 429 RX2B	
26	ARINC 429 RX3B	
27	ARINC 429 RX4B	-0804 Only
28	ARINC 429 RX5B	-0804 Only
29	ARINC 429 RX6B	-0804 Only
30	ARINC 429 RX7B	-0804 Only
31	IRIG SIGNAL	
32	*RESERVED*	*Do Not Connect.*
33	*RESERVED*	*Do Not Connect.*
34	*RESERVED*	*Do Not Connect.*
35	*RESERVED*	*Do Not Connect.*
36	ARINC TX GROUND	
37	ARINC 429 TX0A (TX12A)	
38	ARINC 429 TX0B (TX12B)	
39	ARINC 429 TX1A (TX13A)	
40	ARINC 429 TX1B (TX13B)	
41	ARINC 429 TX2A (TX14A)	-0804 Only
42	ARINC 429 TX2B (TX14B)	-0804 Only
43	ARINC 429 TX3A (TX15A)	-0804 Only
44	ARINC 429 TX3B (TX15B)	-0804 Only

J3: 10/100/1000 ETHERNET

PIN	FUNCTION
1	LAN1_MDI0+
2	LAN1_MDI0-
3	LAN1_MDI1+
4	LAN1_MDI1-
5	LAN1_MDI2+
6	LAN1_MDI2-
7	LAN1_MDI3+
8	LAN1_MDI3-

J4: USB

PIN	FUNCTION
1	5 VDC
2	DATA -
3	DATA+
4	GROUND

CUSTOM SOFTWARE

Custom software development available upon request.