Logicbus

Your Automation Site !

QUICK REFERENCE GUIDE
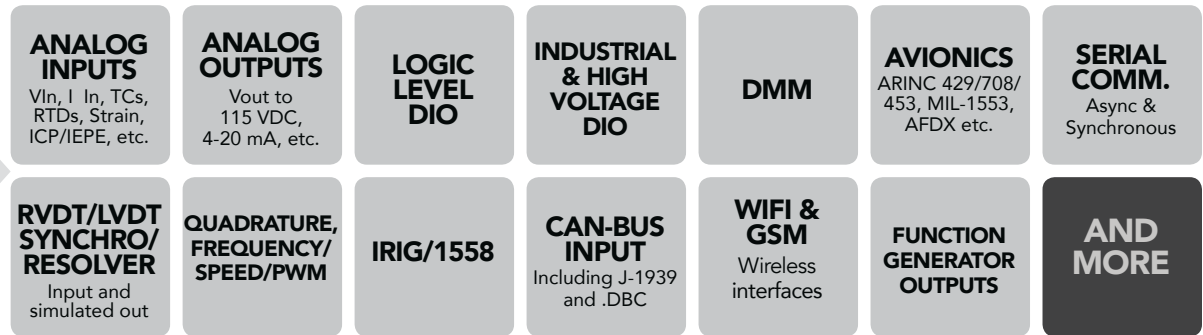
Logicbus
Your Automation Site !

Build Your Perfect System with UEI

UEI has created a quick and easy way to build your perfect I/O system. We have identified 3 segments – chassis, I/O selection, and software/programming options – that allow you to assemble an ideal system for your application. Below is a graphical overview of each segment and what is included in the build process.
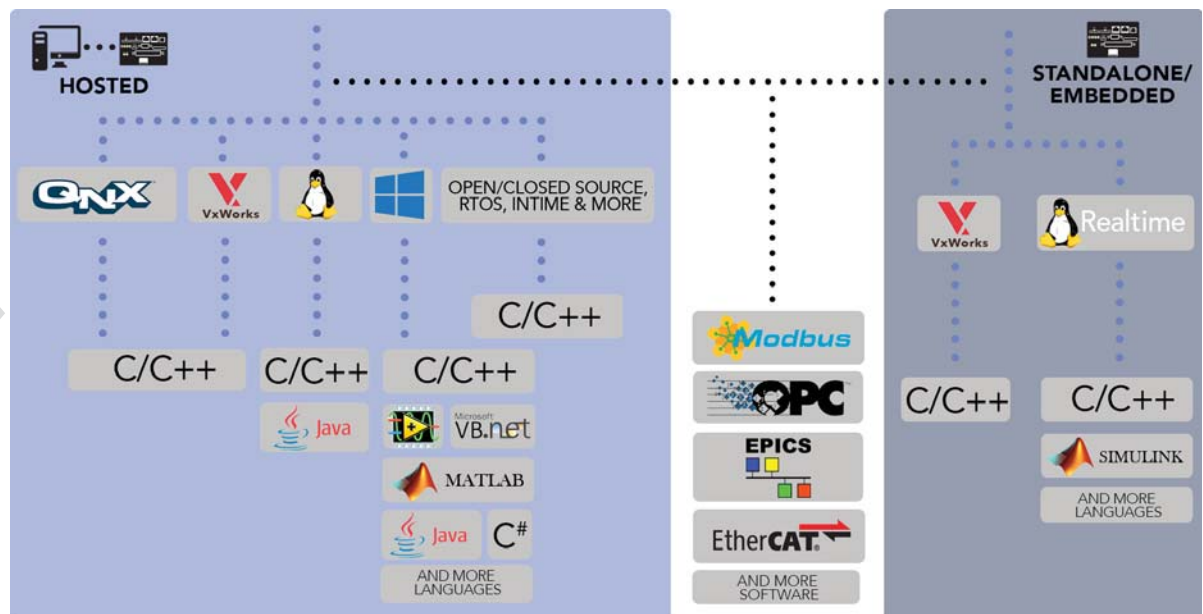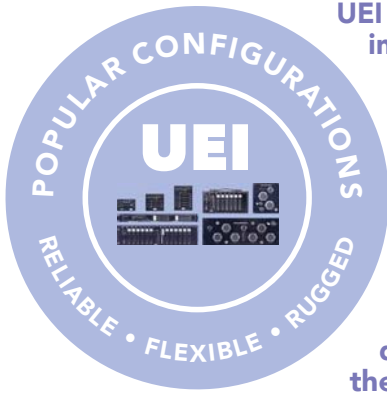
STEP 1
CHOOSE YOUR CHASSIS

1

CUBE & RACK CHASSIS

AND MORE

STEP 2
CHOOSE YOUR I/O

2

ANALOG INPUTS VIn, I In, TCs, RTDs, Strain, ICP/IEPE, etc.	ANALOG OUTPUTS Vout to 115 VDC, 4-20 mA, etc.	LOGIC LEVEL DIO	INDUSTRIAL & HIGH VOLTAGE DIO	DMM	AVIONICS ARINC 429/708/453, MIL-1553, AFDX etc.	SERIAL COMM. Async & Synchronous
RVDT/LVDT SYNCHRO/ RESOLVER Input and simulated out	QUADRATURE, FREQUENCY/ SPEED/PWM	IRIG/1558	CAN-BUS INPUT Including J-1939 and .DBC	WIFI & GSM Wireless interfaces	FUNCTION GENERATOR OUTPUTS	AND MORE

STEP 3
CHOOSE YOUR SOFTWARE/ PROGRAMMING

3

HOSTED

QNX VxWorks Linux Windows OPEN/CLOSED SOURCE, RTOS, INTIME & MORE

C/C++
C/C++ C/C++ C/C++
Java VB.net MATLAB Java C#
AND MORE LANGUAGES

Modbus
OPC
EPICS
EtherCAT
AND MORE SOFTWARE

STANDALONE/ EMBEDDED

VxWorks Realtime

C/C++ C/C++
SIMULINK
AND MORE LANGUAGES

It's really that simple!

Get To Know UEI's System Configurations

POPULAR CONFIGURATIONS
UEI
RELIABLE • FLEXIBLE • RUGGED

UEI systems may be deployed in a wide variety of configurations, including I/O slaves under control of a host PC, fully stand-alone data loggers or embedded controllers, and even as a hybrid, running applications locally, but taking direction from, or sharing data with a host PC on the network.

HOSTED PowerDNA Series
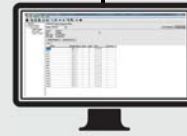
Acts as I/O slaves to a host PC to perform tasks the host commands. This configuration works well in both data acquisition and control applications. PowerDNA mode supports all popular operating systems including Windows®, Linux®, QNX®, VxWorks®, InTime and more. PowerDNA also supports many popular application software including MATLAB®, LabVIEW®, and more.

EMBEDDED UEIPAC Series

Stand-alone embedded controllers or data loggers. Build your application on a Linux PC, Windows PC using Cygwin, or on a Linux VxWorks OS. Once developed, compile your code and download it to the UEIPAC to run stand-alone and/or to keep on your network to provide updates to your host. UEIPAC can also be used as a local control node tied to a host PC to execute local applications as directed by the host.

INTERNET OF THINGS UEI IoT

IoT is a networked system of Interconnected physical objects that can share data with each other and cloud services for archiving and analysis. UEI's Linux-based PACs come preinstalled with Eclipse Mosquitto (MQTT) which implements the MQTT machine-to-machine (M2M) protocol. UEI also supports Helix Device Cloud, Amazon AWS IoT and Microsoft Azure. Available on embedded and OPC-UA platforms.
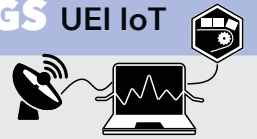
SIMULINK UEISIM Series

Easily run your Simulink models on real I/O. Build a standard Simulink application and then generate and compile code using Mathworks Embedded Coder. You can run your models stand-alone or under supervisory control of the host PC. UEISIM creates a powerful solution for developing and tuning real-time (and non-real-time) applications including model verification, rapid prototyping, and HIL testing.
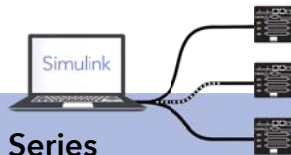
MODBUS UEIModbus Series

Perfect I/O system to run from your Modbus TCP host. The UEIModbus is compatible with all popular Modbus host applications and software. The UEIModbus communicates with a host computer or PLC over Modbus TCP. This flexibility allows you to configure one or more chassis to match the specific I/O requirements of your application, especially those for industrial applications.

OPC-UA UEIOPC-UA Series

Run as a standard OPC-Unified Architecture server as defined in IEC 62541. As such, it is supported by a huge number of currently available applications packages, written in-house and by third party developers. The UEIOPC-UA is an ideal solution in a wide variety of oil & gas, HVAC, machine health monitoring as well as host of other industrial control and monitoring functions.

ETHERCAT DNA-ECAT Series

Uses EtherCAT (deterministic Ethernet) with a special CPU module specifically designed to run as an EtherCAT slave for RT applications. The EtherCAT master/host communicates with DNA-ECAT over CAT5e/6/7 series cables. No Ethernet switches/routers needed for multi-chassis connectivity. Other key specifications include built-in watchdog timers, safe state default conditions, and cable redundancy.

CHASSIS OVERVIEW

PowerDNA
CUBE ARCHITECTURE

6 SLOT CUBE
Up to 300,000 hours

4 SLOT MIL-CUBE
130,000 hours

1 SLOT CUBE
160,000 hours

5.8"

7.1"

2.7"

4.1"

4.1"

4"

6.5"

4.1"

6.2"

3 SLOT CUBE
Up to 300,000 hours

7 SLOT CUBE
Up to 300,000 hours

Common Features
- 1, 3, 4, 6 or 7 available I/O slots
- 9-36 V DC Input
- Diagnostic serial port
- SYNC port, 1558 (board-to-board and cube-to-cube)
- -40° C to 85° C
- 5g Vibration,100g Shock, 120,000 ft
- SSD, Encryption Hardware
- 38999 Connections available
- LED Health / Status Indicators
- USB
- 10/100/GigE or Fiber

THE **CUBE** IS THE IDEAL SOLUTION WHEN YOUR APPLICATION CALLS FOR MAXIMUM RUGGEDNESS IN THE SMALLEST POSSIBLE PACKAGE.

3, 6, and 7 slot Cubes are available in GigE and PPC versions.
GigE: Version with 1000/100/10Base-T interface.
PPC: Standard version with 10/100Base-T, RJ-45 connectors, or Fiber connectors.

Wireless Ready (GSM, CDMA, WiFi)
All UEI Chassis are wireless-ready, except for MIL Series. Inquire further with your UEI representative.

PowerDNR
RACKtangle® ARCHITECTURE
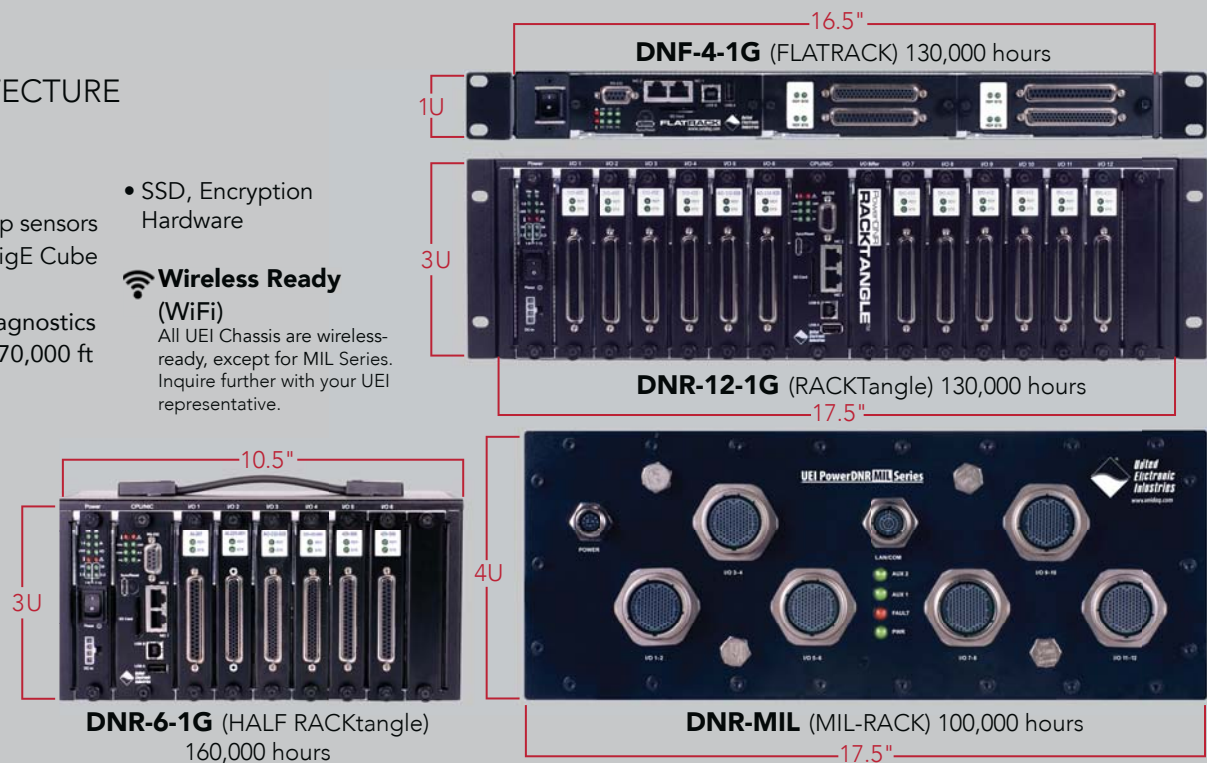
Common Features
- 4, 6 or 12 I/O boards
- Passive backplane with temp sensors
- CPU/NIC board same as GigE Cube (2 independent)
- Extensive built-in test & diagnostics
- 5g Vibration, 100g Shock, 70,000 ft
- -40° C to +70° C
- USB
- 38999 Connections
- 2 independent GigE NICs

- SSD, Encryption Hardware

Wireless Ready (WiFi)
All UEI Chassis are wireless-ready, except for MIL Series. Inquire further with your UEI representative.

THE **RACKtangle** IS DESIGNED TO ALLOW YOUR SYSTEM TO BE QUICKLY & EASILY RECONFIGURED.

16.5"
DNF-4-1G (FLATRACK) 130,000 hours
1U

3U
DNR-12-1G (RACKtangle) 130,000 hours
17.5"

10.5"
3U
DNR-6-1G (HALF RACKtangle)
160,000 hours

4U
DNR-MIL (MIL-RACK) 100,000 hours
17.5"

UEI's Cube, RACKtangle® and FLATRACK™ I/O chassis are compact and rugged data acquisition (DAQ) interfaces, ideally suited for a wide variety of industrial, military, aerospace, energy, laboratory DAQ and control applications. Each Cube/RACKtangle chassis includes a CPU, real-time OS, Ethernet interface and slots allowing the installation of I/O boards. All our boards are compatible with all of our chassis options. With more than 60 I/O boards available, we're sure to have just what you need. UEI supports all popular Windows, Linux and Real-time operating systems. Our software suite provides a simple, universal API and supports all common programming languages. Our Cube/RACKtangle chassis fully support an extensive array of application packages including LabVIEW, MATLAB, Simulink and more.

Please note that PowerDNA® (Distributed Networked Automation) refers to our unique chassis. Cubes are designated with a "DNA" prefix, RACKtangles a "DNR" prefix, and FLATRACK a "DNF" prefix. UEINet™ is our single slot cube. "MIL" designates a chassis meets military-grade specifications MIL-STD-704/1275/461/810.

EtherCAT
CUBE ARCHITECTURE

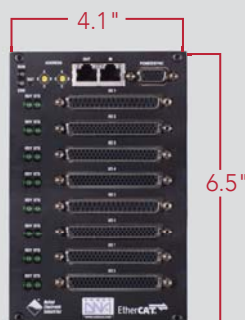**For your high channel count, rugged EtherCAT requirements**

4.1"

2.7"

DNA-ECAT-200
(2 SLOT ETHERCAT BASED I/O CUBE)

4.1"

4"

DNA-ECAT-400
(4 SLOT ETHERCAT BASED I/O CUBE)

4.1"

6.5"

DNA-ECAT-400
(8 SLOT ETHERCAT BASED I/O CUBE)

Common Features

- Fully EtherCAT compliant
- Flexible enough to match your application
- 9-36 V DC Input
- Diagnostic serial port
- -40° C to 85° C
- 5g Vibration, 100g Shock, 120,000 ft
- 5 kHz update rates
- LED Health / Status Indicators
- Standard Ethernet 100BaseT EtherCAT Interface
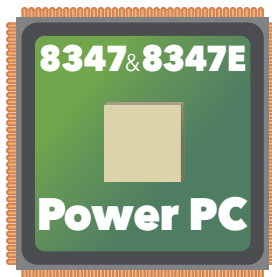- 350 Vrms Isolation

THE **CUBE** IS THE IDEAL SOLUTION WHEN YOUR APPLICATION CALLS FOR MAXIMUM RUGGEDNESS IN THE SMALLEST POSSIBLE PACKAGE.

PROCESSOR OVERVIEW

5200 Power PC
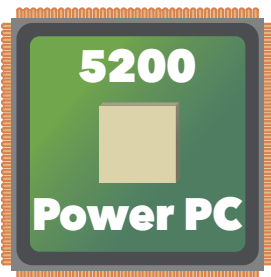
5200 Processor
- On all DNA-PPCx products
- Fiber or Copper 10/100BaseT Ethernet
- Lowest Power
- Same Software API

8347 & 8347E Power PC

8347 & 8347E Processors
- Available for all chassis
- 2 Independent 1000BaseT Ethernet
- Options for 256 MB RAM, 128 MB Flash
- 8, 32 GB SD Cards
- 8, 16, 64 GB SSD Options
- IEEE 1588 Synchronization

CYBER SECURITY READY
- Hardware Encryption Engine optional
- Hardware Assured NVRAM Protection
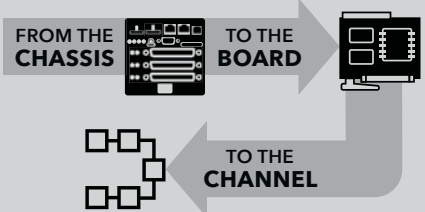
SPECIFICATIONS

Processor	Part Number	Memory	Connectivity	Non-volatile Memory	Notes	MTBF
5200 PowerPC	DNA-PPCx	128 MB RAM, 4 MB Flash	RS-232, 10/100Base-T, Switch	SD Card	3.5 Watts	>300,000
5200 PowerPC	DNA-FPPCx	128 MB RAM, 4 MB Flash	RS-232, Fiber 10/100Base-T, Switch	SD Card	3.5 Watts	>300,000
8347 PowerPC	All -1G	128 MB RAM, 32 MB Flash 256 MB Optional RAM	RS-232, USB2.0 2 GigE (Independent)	SD Card, Flash SSD	7 Watts, IEEE 1588	>160,000
Encrypted 8347	All -1G	256 MB RAM, 128 MB Flash	RS-232, USB2.0 2 GigE (Independent)	SD Card, Flash SSD	7 Watts, IEEE 1588, Hardware Encryption	>160,000
Renasas	DNA-ECAT	-	RS-232, 2 100Base-T	N/A	4 Watts, EtherCAT	>350,000

GUARDIAN SERIES ADVANTAGE: On-board I/O Monitoring System

REAL-TIME DIAGNOSTICS	COMPLETE SELF-CHECK	ELIMINATE HEADACHES

Open/Broken Sensor Detection

Channel Self-Test without Field Wiring Disconnection

Current/Voltage Monitoring

Circuit Breaker Functionality

FROM THE **CHASSIS** TO THE **BOARD**

TO THE **CHANNEL**

Save Time

Reduce Monitoring Complexity

Lower Costs (No External Test Equipment)

ANALOG INPUT

Board Type	Part Number (DNx-)	Number of Channels	Resolution (Bits)	Maximum Sample Rate (Channel) kS/sec	Maximum Sample Rate (Board) kS/sec	Simultaneous Sampling (no MUX)	Maximum Input Range	Minimum Input Range	Channel-to-Channel Isolation	MTBF
General Purpose, Low Noise	AI-207	16	18	16	16	-	±10 V	±12.5 mV	-	>600,000
High Speed, Simultaneous Sampling	AI-217	16	24	120	1000	✓	±10 V	±156 mV	-	275,000
High Density	AI-248-230	24	18	0.25	6	-	+32 / -2 V	+32/-2 mV	-	550,000
High Density, High Speed	AI-201-100	24/12	16	100	100	-	±15 V	±1.5 mV	-	600,000
High Speed, High Voltage	AI-205	4	18	250	1000	✓	±100 V	±100 mV	✓	>600,000
High Speed, Fully Isolated	AI-218	8	24	120	480	✓	±10 V	±156 mV	✓	200,000
High Voltage, Fully Isolated	AI-228-300	8	24	120	480	✓	±300 V	±37.5 V	✓	200,000
Current Input	AI-202	12	16	16	16	-	±150 mA	±1.5 mA	-	>600,000
0-20 / 4-20 mA Input	AI-204	24	18	1	24	-	0-20 mA	0-0.2 mA	-	>500,000

Guardian Series—Includes a variety of powerful diagnostic and BIT functionality.

ANALOG INPUT (CONTINUED)

Board Type	Part Number (DNx-)	Number of Channels	Resolution (Bits)	Maximum Sample Rate (Channel) kS/sec	Maximum Sample Rate (Board) kS/sec	Simultaneous Sampling (no MUX)	Maximum Input Range	Minimum Input Range	Channel-to-Channel Isolation	MTBF
Thermocouple - Fully Isolated	AI-212	12	24	1.5	18	✓	±2.048 V	±32 mV	✓	230,000
Thermocouple, High Resolution, High Density	AI-225	25	24	1	25	✓	±1.25 V	-	-	520,000
RTD / Resistance	AI-222	12	24	0.150	1.8	✓	40k ohm	100 ohm	✓	230,000
Strain/Bridge Input, Low Cost	AI-208	8	18	8	8	-	±10 V	±12.5 mV	-	>600,000
Strain/Bridge Input, High Performance	AI-224	4	18	100	400	✓	±10 V	±78 mV	✓	260,000
ICP / IEPE Accelerometers	AI-211	4	24	125	500	✓	+25 / -13 V	±2.5 V	✓	250,000
LVDT / RVDT	AI-254*	4	16	5	20	✓	28 Vrms	2 Vrms	✓	275,000
Synchro / Resolver	AI-255*	2	16	4	8	✓	28 Vrms	2 Vrms	✓	275,000
Synchro / Resolver	AI-255-815*	2	16	4	8	✓	115 Vrms	5 Vrms	✓	275,000
LVDT / RVDT, Synchro / Resolver, High Drive	AI-256*	2	16	10	20	✓	28 Vrms	5 Vrms	✓	275,000

*Also available as analog output

ANALOG OUTPUT–GENERAL PURPOSE

Board Type	Part Number (DNx-)	Number of Channels	Update Rate (Channel) kS/sec	Update Rate (Board) kS/sec	Output Range (Volts)	Output Current Drive (mA)	Channel-to-Channel Isolation	MTBF
General Purpose	AO-308	8	100	500	+/-10	+/-5	-	480,000
Fully Isolated With Readback	AO-318	8	10	80	+/-10	+/-10	✓	200,000
High Current	AO-308-350	8	100	800	+/-10	+/-50	-	480,000
High Density	AO-332	32	10	320	+/-10	+/-10	-	400,000
High Density With Readback	AO-333	32	10	320	+/-10	+/-10	-	400,000
Medium Voltage/Current	AO-308-352	8	100	800	+/-13.5	+/-13.5	-	480,000
High Voltage	AO-308-353	8	100	800	+/-40	+/-5	-	480,000
Current Output (0-20mA)	AO-308-020	8	100	800	-	0-20	-	480,000
Current Output (0-20mA), Isolated With Readback	AO-318-020	8	10	80	-	0-20	✓	200,000
Current Output (4-20mA)	AO-308-420	8	100	800	-	4-20	-	480,000
High Current Buffer (External)	DNA-STP-AO-200	8	-	-	+/-10	+/-250	-	200,000
High Current, High Voltage (External)	DNA-STP-AO-250	4	-	-	0 - 35	+/-250	-	200,000
High Voltage Amplifier (External)	PD-AO-AMP-115	16	-	-	+/-115	+/-10	-	100,000

▓ Guardian Series—Includes a variety of powerful diagnostic and BIT functionality.

ANALOG OUTPUT–SIMULATION

Board Type	Part Number (DNx-)	Number of Channels	Update Rate (Channel) kS/sec	Update Rate (Board) kS/sec	Output Range (Volts)	Output Current Drive (mA)	Channel-to-Channel Isolation	MTBF
SIMULATED DEVICE/SENSOR								
Strain Gage Simulator, 120/350/1k Ohm	AO-358-120/350 or 1k	8 Bridges	5	40	N/A	N/A	-	250,000
Simulated LVDT / RVDT	AI-254	4	5 kHz exc	-	0 - 6.7 Vrms	65 mA	✓	275,000
Simulated Synchro / Resolver	AI-255	2	4 kHz exc	-	0 - 28 Vrms	1.2 VA	✓	275,000
Simulated S/R & RVDT/LVDT, High Drive	AI-256	2	10 kHz exc	-	0 - 19.8 Vrms	2.4 VA	✓	275,000
Transformer for AI-254	TRF-254-447	4	5 kHz	-	4.47:1 ratio	4.47:1 ratio	-	-
Transformer for AI-254	TRF-254-122	4	5 kHz	-	1.22:1 ratio	1.22:1 ratio	-	-
Simulated Thermocouple with CJC	TC-378	8	1 kHz	8 kHz	+/- 100 mV 16 bits	+/- 10 mA	✓	250,000
Simulated RTD	RTD-388	8	200 Hz	200 Hz	18-390 Ohm, 180-3900 Ohm, 7500 steps	+/- 4mA Input	✓	200,000

DIGITAL I/O

Board Type	Part Number (DNx-)	Number of Channels	Input (kHz)	Output (kS/s)	Drive Capacity (Continuous/ Peak)	Range (min V)	Range (max V)	Change of State	MTBF
DISCRETE I/O									
Logic Level	DIO-403	48	10	20	16 mA	2.5	5.5	✓	>600,000
Sourcing Outputs, 3.3-36VDC Inputs	DIO-404	12 in/12out	100	100	350 mA / 500 mA	3.3	36	✓	375,000
Sourcing Darlington Outputs, 5-36VDC Inputs	DIO-405	12 in/12out	1	1	80 mA / 200 mA	5	36	✓	>600,000
Sinking Outputs, 3.3-36VDC Inputs	DIO-406	12 in/12out	100	100	1 A / 1.5 A	3.3	36	✓	375,000
DISCRETE INPUTS									
5-36 V DC Inputs	DIO-401	24	1	-	-	5	36	✓	>600,000
0-32 V DC Inputs	DIO-448	48	1	-	-	-1	32	-	550,000
0-150 V AC/DC Inputs	DIO-449	48	1	-	-	-150	150	✓	400,000

Board Type	Part Number (DNx-)	Number of Channels	Input (kHz)	Output (kS/s)	Drive Capacity (Continuous/ Peak)	Range (min V)	Range (max V)	PWM	MTBF
DISCRETE OUTPUTS									
Sourcing Darlington Outputs	DIO-402	24	-	1	80 mA / 200 mA	7	36	-	>600,000
Solenoid Drive (Source/Sink), 3.3-36 V DC	DIO-416-32	32	-	0.125	500 mA / 3.5 A	3.3	48	-	130,000
Sinking Outputs, 3-36VDC	DIO-432	32	-	1	600 mA / 3.5 A	3.3	36	✓	260,000
Low-leakage, Sinking Outputs, 3-36VDC	DIO-432-800	32	-	1	600 mA / 3.5 A	3.3	36	✓	260,000
Sourcing Outputs, 3-36VDC	DIO-433	32	-	1	600 mA / 3.5 A	3.3	36	✓	260,000
Low-leakage, Sourcing Outputs, 3-36VDC	DIO-433-800	32	-	1	600 mA / 3.5 A	3.3	36	✓	260,000
RELAY OUTPUTS									
Relay Outputs, Form C	DIO-452	12	-	0.125	2 A	0	220 VDC / 250 VAC	-	260,000
Relay Outputs, Form C	DIO-462	12	-	0 .125	2 A	0	220V DC / 250 VAC	-	260,000
Solid State Relay Outputs, Form A (NO)	DIO-463	12	-	0.125	2 A	0	51 VDC / 51 VAC	-	260,000
High Current Relay Outputs, Form C	DIO-470	10	-	0.125	5 A	0	140 VDC / 150 VAC	-	260,000
Solid State Relay Outputs, Form A	DIO-430	30	-	1	400 mA / 2 A	0	55 VDC / 55 VAC	-	300,000
MULTI-PLEXERS									

Board Type	Part Number	Number of Channels	Input (kHz)	Output (kHz)	Drive Capacity Continuous/Peak	Range (min V)	Range (max V)	Channel to Channel Isolation	MTBF
Multiplexer	DIO-440	Dual 2x20	-	500 Hz	600 mA / 2 A	0	55 VDC / 55 VAC	✓	300,000

▢ Guardian Series—Includes a variety of powerful diagnostic and BIT functionality

SERIAL / CAN BUS

Communications Bus Protocol	Part Number (DNx-)	Physical Interface	Number of Channels	Transfer Rate	Notes	Channel-to-Channel Isolation	MTBF
High Speed CAN	CAN-503	CAN 2.0	4	1 Mbit	J1939 and CAN .dbc support	✓	350,000
4-port serial	SL-501	RS-232/422/485	4	2 Mbaud	J1587/J1708, Interrogation Scheduler	✓	350,000
4-port high speed serial	SL-501-804	RS-232/422/485	4	4 Mbaud	J1587/J1708, Interrogation Scheduler	✓	350,000
HDLC/SDLC Synchronous	SL-504	RS-232/422/423/485	4	4 Mbaud	HDLC/SDLC TX/RX Synch.	✓	290,000
8-port serial	SL-508	RS-232/422/485	8	2 Mbaud	J1587/J1708, Interrogation Scheduler	✓	290,000
GP Synchronous Serial Communications	CT-602-804	RS-485/422	4	16 Mbaud	General Purpose	✓	350,000
On-board Synchronous Serial Interface (SSI)	SL-514	RS-485/422	4	2.5 MHz	Master, Slave 3-32 bits, FIFO onboard	✓	350,000

Remote Serial Server available for all RS232/422/485 boards on Linux & Windows.

COUNTER / TIMERS

Counter/timer function	Part Number (DNx-)	Type	Number of Channels	Clock Rate	Notes	Channel-to-Channel Isolation	MTBF
High Speed Counter/Timer	CT-601	32 Bits	8	66 MHz	Debouncing on Ext Clock & Gate	-	350,000
Differential Counter/Timer	CT-602	32 Bits	4	66 MHz	RS-422/485 Logic Levels	✓	350,000
Quadrature Encoder Input	QUAD-604	A,B, & Z inputs	4	16.5 MHz	Buffered or Single Point Readings	-	350,000
Universal Speed Input	VR-608	50 mV - 250 V p-p	8	300 kHz	4 Freq Out, Double/Low Tooth	✓	180,000
IRIG Timing Gen & Synch	IRIG-650	A/B/E/G type	1	1, 5, 10 MHz	On-board GPS Receiver	✓	240,000
Precision Timing Interface	CT-651	ICD-GPS-060	4	1 PPS	Slaved or Free Run/Fix Wheel	✓	300,000

AVIONICS I/O

Protocol	Part Number (DNx-)	Type	Number of Channels	Transfer Rate	Notes	Channel -to- Channel Isolation	MTBF
1553 (Dual Redundant)	1553-553	2 Ports	2	1 Mbaud	Bus Cont, Remote Term, or BM	✓	275,000
ARINC-429	429-566	6 TX / 6 RX	12	12.5/100 kHz	Williamsburg V1 Support	-	470,000
ARINC-429	429-512	12 RX	12	12.5/100 kHz	Williamsburg V1 Support	-	470,000
ARINC-429	429-516	16 TX	16	12.5/100 kHz	256 labels/ch on-board scheduler	✓	470,000
ARINC-615	429-XXX	Up to 16	16	12.5/100k baud	Williamsburg for Airborne & Portable Data Loader	✓	470,000
ARINC-708/453	708-453	2 TX / 2 RX	4	1 Mbaud	Weather or Ground Prox Radar, WXPD	✓	275,000
ARINC-825	CAN-503	4 Ports	4	83.3-1000 kb	Sensors, Actuators	✓	350,000
AFDX & ARINC-664	AFDX-664	2 Ports	2	100,000 kb	Dual Redundant or Independent	-	130,000
ARINC-615A	AFDX-664	2 Ports	2	100,000 kb	Airborne & Portable Data Loader for Ethernet	-	130,000
CSDB	CSDB-509	8 TX / 8 RX	8	12.5/100 kHz	11 bit, character and frame clocks	✓	290,000
M272/PRF/PIM	CT-602-808	M272 and PRF/PIM	1	1 Mbaud	Hellfire Missile Interface	N/A	350,000

▨ Guardian Series—Includes a variety of powerful diagnostic and BIT functionality

WIRELESS COMMUNICATIONS

Wireless Protocol	Part Number (DNx-)	Type	Number of Channels	Transfer Rate	Notes	Channel -to-Channel Isolation	MTBF
Wireless (GSM, CDMA, WIFI)	CAR-550	PCIe Mini Compatible	1	-	For GigE UEIPAC Cubes	-	300,000
GPS Receiver and IRIG I/O	IRIG-650	Passive or Active Antenna	1	-	Time Derived From GPS/IRIG String	-	275,000
GPS Receiver Module	DNA-GPS	Garmin 16 Series	1	1 PPS	-	-	200,000

POWER SUPPLIES

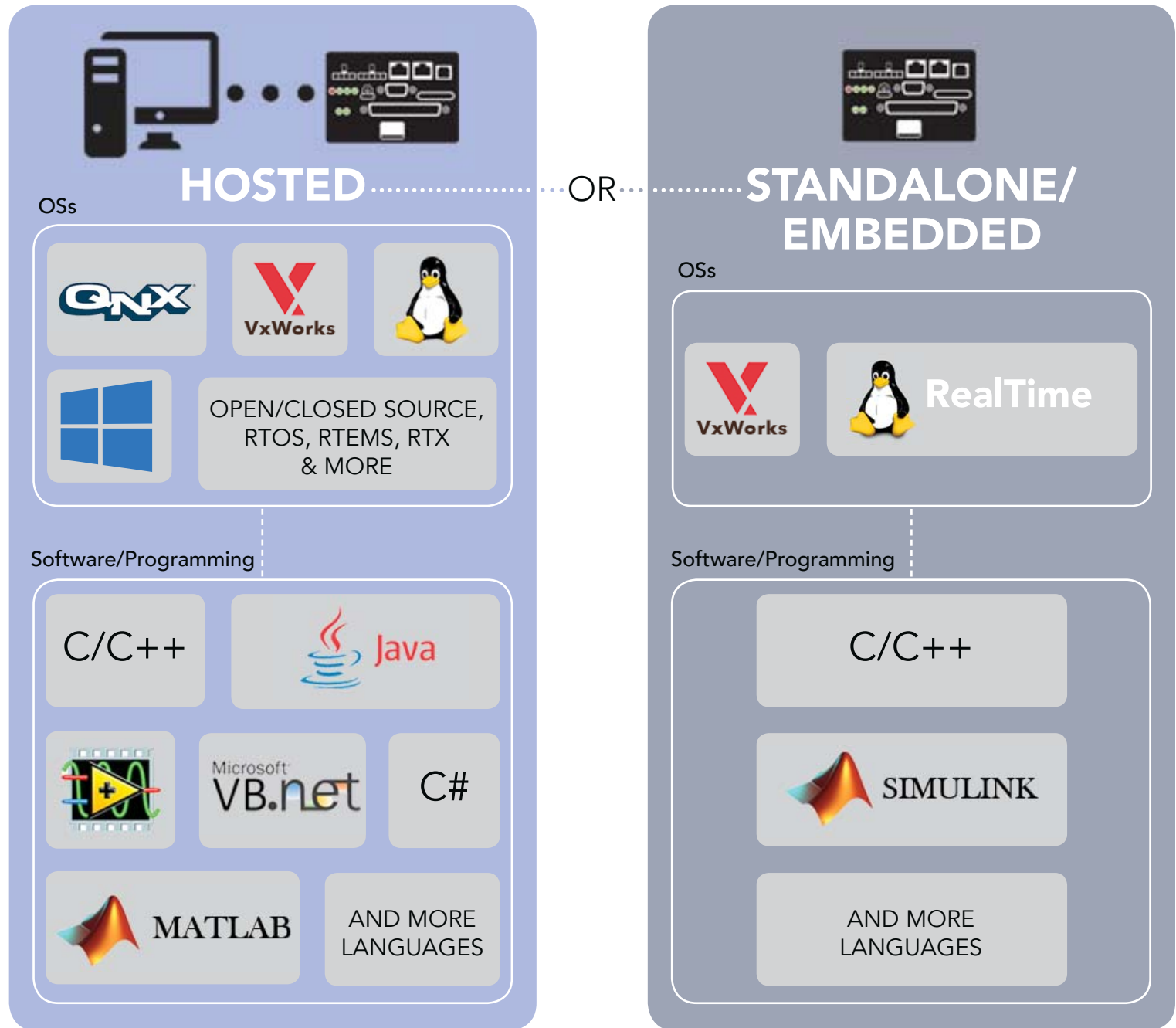| Output Voltage	Part Number (DNx-)	Number of Channels	Output V	Current (Max)	Notes	Channel -to-Channel Isolation	MTBF
10 V	PC-910	1	+/- 10	1.5 A	Isolation Current/Voltage Feedback	-	150,000
15 V	PC-911	1	+/- 15	1.2 A	Isolation Current/Voltage Feedback	-	150,000
24 V	PC-912	1	+/- 24	1.6 A	Isolation Current/Voltage Feedback	-	150,000
45 V	PC-913	1	+/- 45	0.4 A	Isolation Current/Voltage Feedback	-	150,000
MIL-704/1275	PC-922	Internal	-	-	MIL-STD-704/1275/461 Power Conditioner	-	150,000

RECONFIGURABLE

Board Type	Part Number (DNx-)	Connection	Notes	FPGA
Reconfigurable FPGA	PL-820	2x 62 Pin	104 DIO Pins, JTAG Connections	MAX10 / Cyclone II
FPGA Baseboard	PL-60x	37 or 62	Connection to custom daughter card	Cyclone III

INSTRUMENTS

Board Type	Part Number (DNx-)	Number of Channels	Update Rate (Channel)	Ranges	Type	Current	Channel -to-Channel Isolation	MTBF
6.5 Digit DMM	DMM-261	1	100 Hz	+/- 300VDC, +/-100mVDC , +/-200 Vrms, +/-125 mVrms, 100 MΩ to 10 Ω	VDC, VAC, IDC, IAC and Resistance	+/- 2A AC/DC +/-1mA AC/DC	✓	300,000
Function / Arbitrary Waveform Generator	AO-364	4	150 kHz	+/-12V	Sine, Square, Triangle, Trapezoid, AWFG	+/-12mA	✓	290,000

The **Flexibility You Need** for Your Applications

We pride ourselves on being operating system and software agnostic. Learn more about some of the popular OSs, programming languages and applications UEI supports.

HOSTED ···············OR··············· STANDALONE/EMBEDDED

HOSTED

OSs

- QNX
- VxWorks
- Linux
- Windows
- OPEN/CLOSED SOURCE, RTOS, RTEMS, RTX & MORE

Software/Programming

- C/C++
- Java
- LabVIEW
- Microsoft VB.net
- C#
- MATLAB
- AND MORE LANGUAGES

STANDALONE/EMBEDDED

OSs

- VxWorks
- Linux RealTime

Software/Programming

- C/C++
- SIMULINK
- AND MORE LANGUAGES

Applications

OPC

Hosted & Embedded/Standalone.

OPC and OPC-UA.

EPICS

Hosted & Embedded/Standalone.

EPICS - Experimental Physics and Industrial Control System.

UEI IoT

Embedded/Standalone Only.

Mosquitto - MQTT. Helix Device Cloud. Amazon AWS IoT. Microsoft Azure.

Modbus

Hosted & Embedded/Standalone.

Modbus TCP.

EtherCAT

Hosted.

Full EtherCAT compliance in UEI's DNA-ECAT Series.

All the Accessories You Need to

CUBE, RACK & MIL CHASSIS: AVAILABLE OPTIONS

DIN RAILS, BRACKETS/CLIPS

FLANGES

CHASSIS FILLER

EXTENDER BRACKETS

FANS

CHROMATE
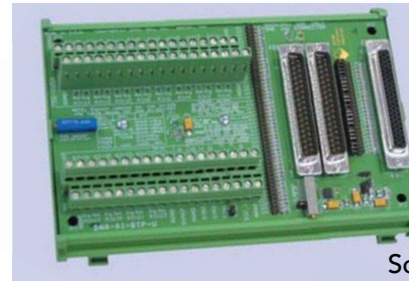
ALTERNATE CHASSIS

CONFORMAL COATINGS

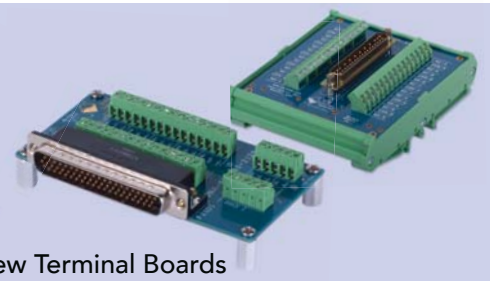## CABLES, PANEL ADAPTERS & MORE: ADDITIONAL ACCESSORIES

Cables

SD Cards

Screw Terminal Boards

Power Supplies

Universal
Screw Terminal Panels

Test Adapters

DON'T SEE WHAT YOU NEED?

We most likely have it!

Contact your UEI representative today.

Complete **Your Perfect I/O System**

SCREW TERMINAL ACCESSORY PANEL

Board Type	Part #	Board Specific	Number of Channels	Connection	Included with Board
37-channel Input Panel	DNA-STP-37	Any 37 pin connections	-	37	-
62-channel Input Panel	DNA-STP-62	Any 62 pin connections	-	62	-
Universal 37/62 Channel	DNA-STP-37/62	37/62 pin connections	-	37/62	-
Universal Analog Input Panel	DNA-STP-AI-U	DNx-AI-207/217, DNx-AI-225, DNx-201-100	16 and 25	37/62	-
37-way Terminal Panel with CJC Sensor	DNA-STP-37CJC	DNx-AI-207	16	37	-
Thermocouple Input Panel	DNA-STP-AI-207TC	DNx-AI-207	16	37	-
Strain Gage Input Panel	DNA-STP-AI-208	DNx-AI-208	8	37	-
Thermocouple Input Panel	DNA-STP-AI-212	DNx-AI-212	12	37	✓
Pull up/down Resistors	DNA-STP-403	DNx-DIO-403 and DNx-DIO-448	48	62	-
High Current Input Panel	DNA-STP-37HC	DNx-DIO-470	10	37	-
Serial 8-port Input Panel	DNA-STP-508	DNx-SL-508	8	62	-
Accelerometer Input Panel	DNA-STP-211	DNx-AI-211	4	37	✓
GPS Input Panel	DNA-STP-GPS	DNA-GPS	1	DB9	✓
Sync Connection Panel	DNA-STP-SYNC-1G	All	Up to 6 chassis	STP, BNC, DNA-CBL-SYNC-RJ	-
Debug Adapter for 37 pin boards	DNA-TADP-37	All	-	37	-
Debug Adapter for 37 pin boards	DNA-TADP-62	All	-	62	-

CABLES

Cable Description	Part #	Shielded	Lengths (Ft)	Included With
37-way, round cable (Male-Female)	DNA-CBL-37S	✓	1, 3, 5, 10, 20	-
37-way, flat ribbon cable (Male-Female)	DNA-CBL-37	-	3	-
Right angle 37-way, round cable (Male-Female)	DNA-CLB-37RA	✓	3	-
Special 37-way, high current (5 A) cable	DNA-CBL-37HC	✓	3, 6, 12	-
Male 128-pin 38999 to 1x DB-37F	DNA-CBL-37M-03	✓	3	-
62-way, round shielded cable (Male-Male)	DNA-CBL-62	✓	2.5, 6, 10, 20, 40	-
Right angle 62-way, round shielded cable (Male-Male)	DNA-CLB-62RA	✓	3	-
Male 128-pin 38999 to 1x DB-62M	DNA-CBL-62M-03	✓	3	-
Male 128-pin 38999 to 1x DB-37F and 1x DB-62M	DNA-CBL-6237M-3	✓	3	-
Male 128-pin 38999 to 2x DB-37F 38999	DNA-CBL-12837	✓	3, 5	-
Male 128-pin 38999 to 2x DB-62M 38999	DNA-CBL-12862	✓	5	-
MIL connector cable	DNA-CBL-1315-03	✓	3	-
BNC connections for Clock/IRIG & 1553	DNA-CBL-650	✓	2	DNA/DNR-IRIG-650 & DNA-1553-553
Male 62-pin to four MIL-STD-1553 connectors	DNA-CBL-1553-553	✓	1	DNA-1553-553
10-32 UNF Coaxial to Std Full-Size BNC cable/Adaptor	DNA-CBL-BNC	✓	3	-
62-way to 4 single Serial ports, round shielded cable	DNA-CBL-COM	✓	1.5	-
MIL LAN connector cable	DNA-CBL-LAN-06	✓	6	-
Cube Synchronization Cable	DNA-CBL-SYNC-10	✓	10	-
Sync to RJ50 cable	DNA-CBL-SYNC-RJ	✓	3	-
10-32 UNF coaxial to std full-size BNC cable/adaptor	DNA-CBL-BNC	✓	3	-

Logicbus
Your Automation Site !

Successful Applications start with UEI Hardware & I/O

Here is a sampling of typical application story briefs that illustrate the dynamic capabilities of UEI.

FLIGHT SIMULATION

FlightSafety International selected UEI's RACKtangle I/O chassis for their flight simulators. The UEI system provides the interface between the controlling computers and the simulator's various systems including Avionics Instrument Control, Control Loading and Motion and Flight Deck I/O. UEI was selected because of our high channel density, our I/O combined with a Gigabit Ethernet interface to the real-time operating system, and our built-in diagnostics and self-test capabilities.

MARINE CRAFT CONTROL

The Navy needed a rehost for obsolescence and dependability on 75 LCAC marine crafts. They were looking for a TRL9 redundant craft command and control system. A system that is designed not to fail. UEI was selected for our COTS embedded military rack system with included 1553, analog and digital I/O, RS-485, and more. UEI's system ran VxWorks and reduced maintenance time by an impressive 75%. UEI's rugged and dependable hardware met and exceeded expectations.

JET ENGINE TEST CELL

The Air Force developed a next-gen standard design of a test cell for high performance gas turbine engines. The system was designed for thrust frames to be separable from the cell so they could be configured and calibrated as an off-line task -- independent of the cell the frame was installed in. UEI equipment moved with the thrust frame so the system could be configured, tested, and calibrated with the engine either in or out of the test cell. Without our rugged COTS system, this would not be possible.

ROCKET LAUNCH SYSTEM

From ground control to the International Space Station, our hardware is being used to control and monitor a large number of space related applications. Whether the application is military, NASA or with our growing list of commercial space customers, our hardware is becoming a staple in the space industry. Our redundancy and control feedback capabilitvy are crucial in these environments. UEI is the go-to vendor for launchpad hardware and I/O systems.

OIL & GAS MONITORING

UEI is supporting the oil & gas industry by developing innovative hardware and I/O to monitor blow out preventers and oil rig temperature, as well as fail safe solenoid control applications. A major key to our solenoid control success has been our enhanced feedback monitoring. UEI's rugged, compact, accurate and reliable embedded systems are compatible with all SCADA systems. From well monitoring, current/voltage, and vibration, our chassis and I/O are seen as dependable oil & gas application solutions.

SMART MUNITION TESTER

Common Armament Test Set (CATS) and Common Aircraft Armament Test Set (CAATS) programs are designed to test smart munitions equipment in a go/no go fashion. Many existing units in service today are based on dated VME technology that cannot handle increasing complex signal I/O, including MIL-STD-1760 and other sophistic while being smaller, lighter, less expensive, more powerful than existing VME test systems. UEI's has been chosen to replace many of these dated systems.

INTERNET OF THINGS

Use your IoT AI and machine learning software/models with UEI hardware to predict successful outcomes. BAE systems needed a rugged, reliable DAQ system for their new bus engines. Installed on bus fleets worldwide, their new "hybrid propulsion" systems were conceived as IoT connected machines. UEI hardware provided the crucial linkage – continuously collecting data and automatically uploading it to the Bus Fleet Health Monitoring Network. Data is compiled, analyzed and converted into actionable intelligence for distribution to fleet managers, bus mechanics or subscribers worldwide.

WE SUPPORT YOUR APPLICATIONS, INCLUDING:

- Power plant efficiency testing
- High channel count medical instrumentation
- Modernization of SCADA I/O systems
- Machine health monitoring
- Wind turbine automation
- Engine test
- UUV/UAV command/control
- IoT sensor gateways
- Vibration/Strain monitoring
- Health and usage monitoring
- Fleet monitoring
- And many more!

UEI offers a diverse and flexible line of unique and powerful I/O chassis configurations. Whether you choose our Cube, Rack or MIL chassis, we have all the I/O options, OS, programming and software support for your applications.

WATCH &LEARN

WITH UEI VIDEOS

UEI has an extensive online library of product, application and educational videos to better help you learn about our capabilities and offerings.

www.ueidaq.com/videos

Logicbus
Your Automation Site !