# UEI FAQ: High Performance Processor Options

*United Electronic Industries*

4X R.061

4"

4"

4"

4"

DIAG

USB 1   USB 2

NIC1   NIC2

HDMI

nSIM

µSD Card

Sync/Reset

USR  3.3  24
R/W  COM  PG

RDY   STS

I/O 1

9–36 V

Power In

*United Electronic Industries*

POWER DNA

WWW.UEIDAQ.COM

ARM®

DIAG

USB 1   USB 2

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USR  3.3  24
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RDY   STS

RDY   STS

RDY   STS

I/O 1

I/O 2

I/O 3

9–36 V

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STS

STS

STS

STS

STS

STS

STS

I/O 1

I/O 2

I/O 3

I/O 4

I/O 5

I/O 6

I/O 7

9–36 V

Power In

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# UEI FAQ: High Performance Processor Options

UEI offers flexible, rugged, high performance systems that are configurable to a variety of application requirements. This FAQ provides an overview of our system configurations and outlines features offered with each of our GigE CPU board versions.

## INTRODUCTION to UEI Systems

RACKtangle

UEI system configurations include a product line of stand-alone controllers, as well as a product line of "tethered" systems that are slaved to a host PC over Ethernet. Each system chassis can house a selection of I/O boards custom-selected for your application.

UEI's **UEIPAC** product line consists of stand-alone, embedded controllers. These systems run on standard VxWorks, Linux, or Real-time Linux OS, and applications can be developed on a Linux PC or a Windows PC using Cygwin. Additionally, the UEIPAC product line extends to targeted software deployments including a Simulink (UEISIM) option, Modbus (UEIModbus) option, and OPC-UA (UEIOPC-UA) option.

FLATRACK

BRICK

UEI's **PowerDNA** systems run as an I/O slave under the control of a host PC. In this configuration, you develop and run your application on the host PC. PowerDNA mode supports all popular operating systems, including Windows, Linux, QNX, VxWorks and more, as well as application software, such as MATLAB or LabVIEW.

UEIPACs and PowerDNA systems are available in several chassis form factors:

MIL Series

- Cube (4" x 4" x 4", 4" x 4" x 6", or 4" x 4" x 2.7" chassis)
- RACKtangle (3U-19" rack chassis) or HalfRACK (3U-12" rack chassis)
- FLATRACK (1U-19" rack chassis)
- MIL series chassis (designed to meet MIL-STD-461/810/704/1275)

## OVERVIEW of Standard, SoloX and Zynq Product Versions

All GigE UEIPAC and PowerDNA systems are available in 8347 (-02), 8347E (-03), SoloX ARM (-11/-12) and Zynq (-33 and -3A) versions. The new fifth generation UEIPAC (version -33 and -3A), with its Zynq® UltraScale+™ based UEIPAC CPU, offers up to a 10x increase in CPU performance over previous UEIPACs.

PANEL I/O

Product versions correlate directly to the version of the CPU board you require for your system. For example, if you order a UEIPAC-300-1G-03, you are ordering a GigE UEIPAC system in a Cube chassis with slots for 3 I/O boards with an -03 version CPU board.

UEI-ZYNQ

## OVERVIEW of Cyber Security Options

UEI's hardware is designed with the latest tools to keep your data safe and secure. You can rest assured that UEI will keep you safe from:

- Extraction of code
- Manipulation of data and code
- Erasure of data and code
- Introduction of malware
- Disruption of systems operations
- Manipulation of system parameters
- Compromise of cryptographic technologies (use of secure key lengths and algorithms)
- Compromise of I/O interfaces (JTAG, Ethernet, USB, SPI)
- Unprivileged users gaining privileged access
- Compromise of cryptographic keys

**CYBER SECURITY ENABLED**

### 3 PHASES OF UEI CYBER SECURITY

**SECURE BOOT**
- Extension of the Root of Trust
- Prevents untrusted code execution and reverse engineering

**SECURE OS**
- Linux TK that has the latest patches (Yocto)
- All admin control, password policies, etc. activated
- STIG/NIST SP 800.213A compliance

**SECURE HARDWARE**
- Admin control of all interfaces
- Encryption/Activation

# OVERVIEW OF FEATURES

| | 8347 (-02) | 8347E (-03) | SoloX ARM (-11/-12) | Zynq (-33) | Zynq (-3A) |
|---|---|---|---|---|---|
| **Processor/System:** | | | | | |
| **Processor Type** | • Freescale 8347<br>• 400 MHz | • Freescale 8347<br>• 400 MHz<br>  (with encryption) | • NXP i.MX6 SoloX series ARM (Cortex-A9)<br>• 1 GHz clock speed | • Xilinx Zynq® UltraScale+™ SoC quad-core ARM<br>• Integrated FPGA<br>• ZU3EG Series at 1.2 GHz clock speed | • Xilinx Zynq® UltraScale+™ SoC quad-core ARM,<br>• Integrated FPGA<br>• ZU4EV Series at 1.2 GHz clock speed |
| **SD Card Interface** | SD cards up to 32 GByte | SD cards up to 32 GByte | µSD cards up to 32 GByte | N/A | N/A |
| **USB** | Standard USB 2.0 | Standard USB 2.0 | 2x Standard USB 2.0 | Standard USB 3.0/2.0 | Standard USB 3.0/2.0 |
| **RAM** | 256 MByte | 256 MByte | 1 GByte | 4 GByte | 2 GByte |
| **Flash[1]** | 32 MByte | 128 MByte | 8 GByte eMMC | 8 GByte eMMC | 8 GByte eMMC |
| **Solid State Hard Drive[1]** | 8, 16, or 32 GByte drive | 8, 16, or 32 GByte drive | 8, 16, or 32 GByte drive or M.2 peripheral drive | Optional NVMe SS drives up to 512 GByte | Optional NVMe SS drives up to 512 GByte |
| **M.2 Slot** | N/A | N/A | Supports B connector 1X PCIe and USB | Supports M connector 2X PCIe | Supports M connector 2X PCIe |
| **Synchronization Options** | 1PPS or IEEE-1588 (PTP) standard | 1PPS or IEEE-1588 (PTP) standard | 1PPS or IEEE-1588 (PTP) standard | 1PPS or IEEE-1588 (PTP) standard | 1PPS or IEEE-1588 (PTP) standard |
| **Encryption Ready** | N/A | Yes, IPsec support pending | TPM Optional | Yes, on board TPM chip | Yes, on board TPM chip |
| **FPGA Space** | N/A | N/A | N/A | Xilinx FPGA with:<br>• 154k logic cells<br>• 141k CLB Flip-Flops<br>• 71k CLB LUTs | Xilinx FPGA with:<br>• 192k logic cells<br>• 176k CLB Flip-Flops<br>• 88k CLB LUTs |
| **Interface:** | | | | | |
| **Ethernet Interface** | 2x 10/100/1000Base-T | 2x 10/100/1000Base-T | 2x 10/100/1000Base-T | 3x 10/100/1000Base-T | 3x 10/100/1000Base-T |
| **Serial Port** | RS-232, 9-pin "D" | RS-232, 9-pin "D" | DIAG port (use DIAG to RS-232 cable) | DIAG port (use DIAG to RS-232 cable) | DIAG port (use DIAG to RS-232 cable) |
| **Video** | N/A | N/A | Optional HDMI (CPU option -12) 1366 x 768 pixels, 60Hz | Display port supports full HD graphics (1080p) | Display port supports full HD graphics (1080p) |
| **Boot options (UEIPAC-only):** | | | | | |
| **Default Boot Device[1]** | SSD if installed, otherwise SD Card[2] | Flash | eMMC Flash | eMMC Flash | eMMC Flash |

**Note[1]**   UEIPACs boot from the default settings listed above. Other options may be requested.

**Note[2]**   The SSDs can be used for data and/or root file system storage.

*The SD cards and SSD devices used are not built by UEI. As we do not control the source, we cannot offer our 10-year availability guarantee on these devices.*

**For more information:** Please contact UEI support at **support@ueidaq.com** or call **(508) 921-4600** with any questions.