MiTwell

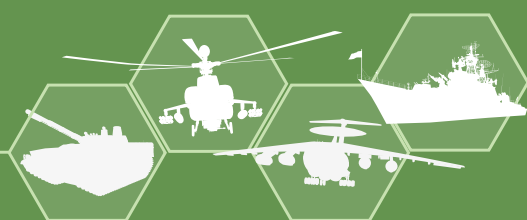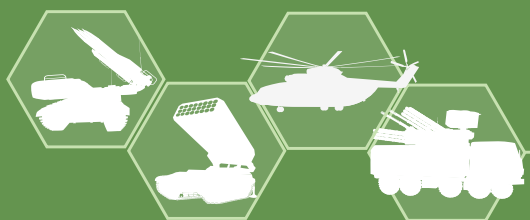## Defense and Military Applications

Extreme Rugged Computing
& High Performance
Embedded Computing
Solution

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MiT Design

Founded in Dec. 2014, as an "Advanced MIT Solution Provider", MiTwell is focusing on designs, R&D, manufacture and system integration services of Industrial PC. We are especially dedicated to the three vertical markets of Defense, Factory Automation and Telematics/Transportation. We provide the high quality system solutions with reliability, and safety regulation certification that sustain in harsh environment to each mission critical application.

Aside from the VM solutions, MiTwell is not only supplying customers a full range of standard computer on module solutions of Qseven and SMARC, memory module, storage products, but also available for chassis (NCT parts), system assembly, system integration services and accepting custom-based projects according to different requirements from customers worldwide, which has strengthened the advantage in price competition and risk reduction in project development stage, provide our customers more flexible, value-added service, rapid reactions and customized services and also, bring the convenience of one- stop shopping.

MiTwell is ISO-9001 certified with quality management assurance to customers. Except devoting to the cutting edge technology and product development, we are committed to excellence and dedicate to the products and service with the most rigorous, precise attitude to each missions we received from customers worldwide.

Defense Applications
Rugged system design and system integration service in defense sector

Air / Aerospace	Land / Ground Defense	Command & Control System	UAV

Radar System	Homeland Security	Naval Defense	Missile System

We focus on Defense

Command, Communications, Computers and Intelligence Applications

Our mission is to provide the high performance and rugged design computer products with the most reliable solution and high quality to the global customers from X86 single board computers through to embedded system integration or RISC solution. After several years cultivating in the vertical market of military sector and through the tenders participation experiences we had, our products have been used for related defense applications.

We have the launching process control boards with module platform for command and control operation on the missile system. In addition, from the customized FPGA products, with the range from Radio Frequency Digital Signal Process Board to Digital Signal Acquisition and Digital Process module, which receive the radio frequency then transfer to HMI interface that deploys on the active phased array radar or ground radar system.

Furthermore, we have several selections of display in military grade and 10.4" multi-functional display. Those are mainly design for land-based vehicle, warship, and marine application. Around 90% of the mentioned cases are FPGA customization and project based, MiTwell is flexible and to meet the growing worldwide demands for embedded computing system in defense applications.

HPC (High Performance Computing)
FPGAs could be leveraged for the plenty application requirement & impact numerous market areas

| Gene Sequencing | Big Data | Climate Simulation |

| Algorithm / Health Care | Machine learning | Data Center |

USA · Finland · Netherlands · UK · Germany · Korea · Japan · India · China · Taiwan · Brazil

AIDC
CERTIFICATOIN
S300

intel | FPGA Design Solutions Network

CE

FC

intel | IoT Solutions Alliance

RoHS

XILINX®

VITA
Open Standards, Open Markets

PICMG
Open Modular
Computing Specifications

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MiTwell defense solution division

As being a long term active partner for Taiwan government and global defense solution providers, MiTwell defense solution division not only dedicate to developing the most innovative high-tech, but also provide a wide range of reconfigurable COTS products on research and development, design and validation test & verification service. We offer OEM/ODM services with the most flexible customization and provide the system integration within the defense, Aerospace and maritime environment.

Reliable customized services and rugged design orientation

MiTwell provides the mission-critical rugged embedded computing systems that subject to the different demands from customers, and it is requested to follow MiTwell's military deployment of the design guide from the component-selection, high levels of shock & vibration test should perform well on the extremes of temperature and environment, extensive voltage, fan-less design, the longevity of supply of military programs as well as to the conformal coating.

Delivering and developing cutting-edge FPGA capability solutions

The increasing demand for embedded computing system to numerous HPC (high performance computing) market areas (such as Big Data, Data Center, Gene Sequencing, machine-learning and intelligence, surveillance, and reconnaissance- ISR applications) is driving the rapid development on FPGA (Field Programmable Gate Array) requirement lately. Through the closer partnership with Intel-Altera, Xilinx and being associated member with Intel, MiTwell positions itself to provide the most innovation products and reconfigurable hardware platform-solutions.

Committed to customer satisfaction with flexible system integration ability

MiTwell could modify the existing full range of COTS industrial computing solutions or provide versatile customer solutions. We are continuously innovating in several standard form factors (including CPCI, VPX and FMC) and provide the needs on optimal size, weight and power (SWAP), high bandwidth to bring the best embedded and rugged solutions.

In terms of our services, we could also do outsourcing, and run configurability and flexibility validation test for system integration to meet the requirement in harsh environment. The certificate experiences that we have been done are MIL-STD- 461 , MIL-STD-810, IP65 and so on.

Long-Term cultivation in Military sector

We have become the approved vendor for NCSIST and be ranked as Top 3 Authorized Vendors in 2016. Also, set up a business office in the area facility of WiCE w48 that near around NCSIST to implement the real time on-site support. In the meanwhile, our engineers are expertly assigned to train and get the certificate of completions for PCB solder paste (ESRD serial no. of 0146 and no. 0071) so we could collaborate with certain national projects as a prime contractors and SI competing.

Aside from cooperated with Taiwan government, we are alliance with global military system integrator as well. We could leverage our design capabilities to provide faster time to market, cost and risk reduction and perfect performance products.

100% MIT with Global service coverage

Beside sharing production with our mother company, Portwell Inc., we also have our own assembly production. All of our factories are with SMT lines, PCB assembly and functional testing as well as the in house validation lab, which are all located in Taiwan to ensure the good quality with ISO 14001, 28000, 9001 and RoHS compliance. There are 13 worldwide offices in China, Japan, Korea, Europe union (Germany, Netherlands, UK), North America, Brazil and India.

Portfolio

Radar
- **Digital Signal Acquisition Module**
- **Digital Signal Process Module**
- **Antenna Digital Signal Process Board**

High Performance Embedded Computing

MiTwell has developed the experiences on customization of modular and flexible hardware and software solutions for Radar acquisition, signal processing and conversion application.

MiTwell FPGA's solution help to speed up the deployment of Radar applications and shorten the development cycle with cost reductions and minimize the field failures due to its significant advances in performance and SWAP efficiency.

FPGA Hardware & Software Development

Altera
- Altera Arria® 10
- Altera Arria® V
- Altera Stratix® III

Xilinx
- Xilinx Zynq® 7
- Xilinx Vertex ® 5
- Xilinx Spartan® 6

MIES-PM4730

MIES-XC65A5

MIES-MZ2020

MIES-AD2310

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intel® | FPGA Design Solutions Network

MiTwell is chosen to be FPGA DSN (Design Solution Network) member as the 3rd official partner by Intel/Altera in Taiwan in the 2nd half of 2016, and we are the 1st industrial company to have such honor.

MIES-MZ2020

Xilinx Zynq®-7020 FPGA Development Board for OS/ RTOS Application

MIES-MZ2020 is an industrial-grade SoC module integrating a Xilinx Zynq® 7020 SoC, DDR3 1Gb onboard and 32MB flash memory, using 12V DC input for configuration and operation. For easy accesses, it has a high density of programmable logic I/Os interface such as HDMI, LVDS/Audio/GBE/USB 2.0 OTG / RS232 and CAN Bus.

With its modular design, there are 2 x 100 rugged high-speed stacking strips for board to board connections and expansion purpose. The module is in 102mm x 72mm compact size. Providing purposed firmware and software for Zynq®-7000 with dual ARM processing and 7 series programmable logic creates specific design to customers.

Feature

- **Xilinx Zynq®-7020 Industrial Grade SBC in 102mm x 72mm**
- **1GB onboard DDR3 and 32MB Flash**
- **HDMI/LVDS/Audio/GBE/USB 2.0 OTG / RS232/CAN Bus**
- **2 x 100-pin Board to Board Connectors**
- **12V DC Input**

MIES-XHN5A10

High Performance Computing Card based on Intel® Arria® 10 GX FPGA with Extension Connectors

MIES-XHN5A10 is based on latest Intel® FPGA device, Arria® 10 GX 1150. It offers a completed and simple approach for computing oriented environment that includes on-board memory for compatibility and it is up to DDR4 16GB DRAM. It also implements a 12V DC input, not only add extra power for PCIe, but design for stand along system. Cause of using into rack-mount system, MIES-XHN5A10 is implemented in a compact size within 68mm x 200mm.

For High-performance Computing and accelerating, it supports PCIe x8 gold-finger for connecting with main CPU and dual 10G LANs as a high speed network interface. Based on security concern to the user's IP (Intellectual Property) protection, it builds Intel® Max 10 CPLD for implementing encryption/decryption function cores. MIES-XHN5A10 also built two 100 pins board to board Connectors for expansion the wide range and customized of I/O functions.

Feature

- **Intel® Arria® 10 PCI Express Add-on Card with high speed extension**
- **PCI Express x8 gold-finger and dual 10Gb Network Interface**
- **Two 100 pins Board to Board Connectors**
- **On-board memory, up to 16Gb DDR4 SRAM**
- **Build-in Intel® Max 10 CPLD**
- **Support 12V DC input**
- **Compact size in 68mm x 200mm**

MIES-XHN5A10 –NIC

High Performance Computing Card based on Intel® Arria® 10 GX FPGA in Network Interface Card (NIC)

MIES-XHN5A10-NIC is based on latest Intel® FPGA device, Arria® 10 GX 1150. It offers a completed and simple approach for computing oriented environment that includes on-board memory for compatibility and it is up to DDR4 16GB DRAM. Cause of using into rack-mount system, MIES-XHN5A10-NIC is implemented for Network Interface Card (NIC) in a compact size within 68mm x 168mm.

For High-performance Computing and accelerating, it supports PCIe x8 gold-finger for connecting with main CPU and dual 10G LANs as a high speed network interface. Based on security concern to the user's IP (Intellectual Property) protection, it builds Intel® Max 10 CPLD for implementing encryption/decryption function cores.

Feature

- **Intel® Arria® 10 PCI Express Add-on Card with high speed extension**
- **PCI Express x8 gold-finger and dual 10Gb Network Interface**
- **On-board memory, up to 16Gb DDR4 SRAM**
- **Build-in Intel® Max 10 CPLD**
- **Compact size in 68mm x 168mm**

Command & Control System

- **19", 21.5" & 24" Military Display**
- **10.4" Military Multi Function Display**
- **RF Communication System**

19", 21.5" & 24" Military grade display for Navy Warship

- Glass with AR/AG and optical bonding option
- Metal Mesh
- DVI and VGA inputs
- OSD keys
- Console & VESA mount
- Flexibility and Customization

24"   21.5"   19"

10.4" Military Multi Function Display for Land-based Vehicle

- Xilinx® ZYNQ® 7030 embedded with 1GB Memory
- Resolution 1024 x 768 with dimming design
- 19 programmable function keys with 2 colors LED
- IP Grade 65 with Vehicle Mount
- Operating Temp. -30°C to 60°C
- MIL-STD-810, MIL-STD-461

10.4"

Compact PCI Main Board

MIES-XC65A5

6U Compact PCI processor blade with Intel® Altera® Arria® V GX FPGA Family

MIES-XC65A5 is selected 28nm Intel® Altera® Arria® V, GX1152 series FPGA device, it offers an ideal design environment that including on-board DDR3 256MB and Dual on-board 128MB flash with a Compact PCI form factor based on the reliability and ruggedized design for the most demanding environment requirement. It builds Max V CPLD FPGA for more flexible extension to the users and available for JTAG on front panel, 1G LAN, DB25 and 8 user-defined LEDs depending on the needs for different market applications.

Feature

- **Intel® Altera® Arria® V 6U Compact PCI board with J1, J3, J4 and J5 connectors**
- **On-board 256MB DDR3 & Dual on-board 128MB flash**
- **Altera® Max V CPLD**
- **JTAG on front panel**
- **DB25 and 8 LED for programmable user define I/O interface**
- **Multiple clock source**
- **It carries one 10/100/1000 Base-T on front panel**

MIES-XC6150

6U Compact PCI processor blade with Intel® Broadwell Core™ i7 processor

MIES-XC6150 is a 6U Compact PCI processor blade in single-slot (4HP) width form factor. It adopts Intel® Core™ i7 processor with Mobile Intel® QM87 PCH and soldered DDR3 ECC memory up to 8GB. Furthermore, it is available for cooper passive heatsink as an option for wide-temperature environment request.

Feature

- **6U Compact PCI processor blade**
- **Support Quad-core 5th Generation Core™ i7-5850EQ processor**
- **Onboard DDR3 with ECC memory up to 8GB**
- **On board memory and SSD for shock and vibration in harsh environment**
- **Single PMC interface for PMC module installation**
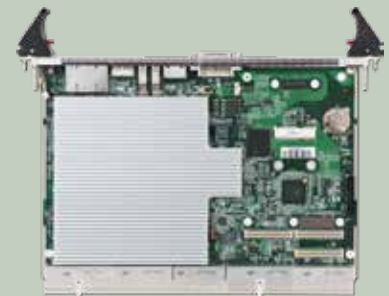
Compact PCI System

MIES-SC4863

6U Compact PCI Enclosure with 8-slot 6U Backplane and Redundant Power Supply
19-inch 4U high and up to 8 slots 6U Compact PCI blade with maximum 3 x PICMG 2.11 PSU installing

Feature

- **19-inch enclosure, 4U High Rack Mount Chassis**
- **6U Compact PCI backplane, 8 horizontal slots**
- **Front Access and hot swappable slot design for easy replacement**

MIES-SC2462

6U Compact PCI Enclosure with 4-slot 6U Backplane and Redundant Power Supply
19-inch 2U high and up to 4 slots 6U Compact PCI blade with maximum 2 x PICMG 2.11 PSU installing

Feature

- **19-inch enclosure, 2U High Rack Mount Chassis**
- **6U Compact PCI backplane, 4 horizontal slots**
- **Front Access and hot swappable slot design for easy replacement**