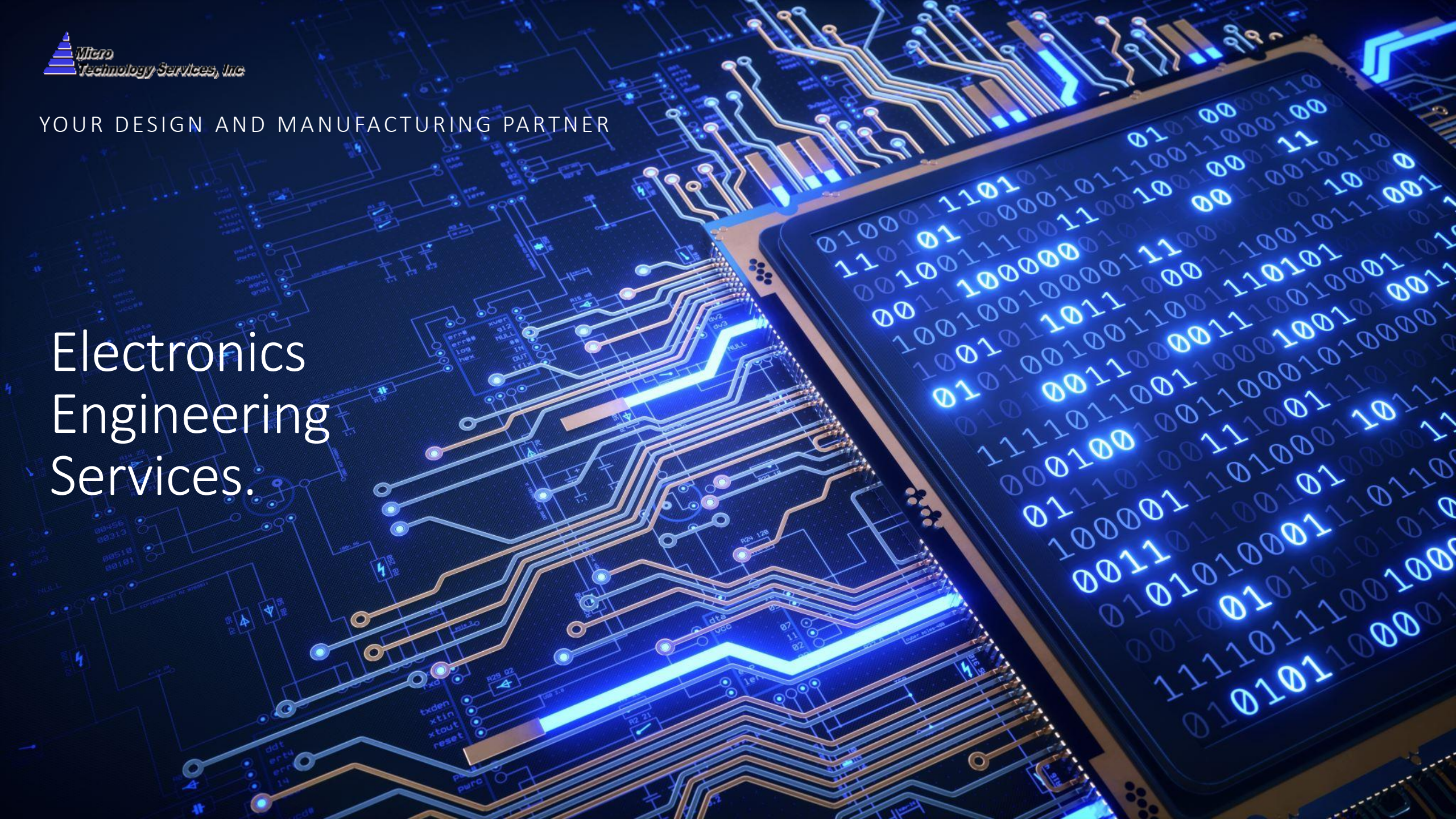




YOUR DESIGN AND MANUFACTURING PARTNER

Electronics  
Engineering  
Services.





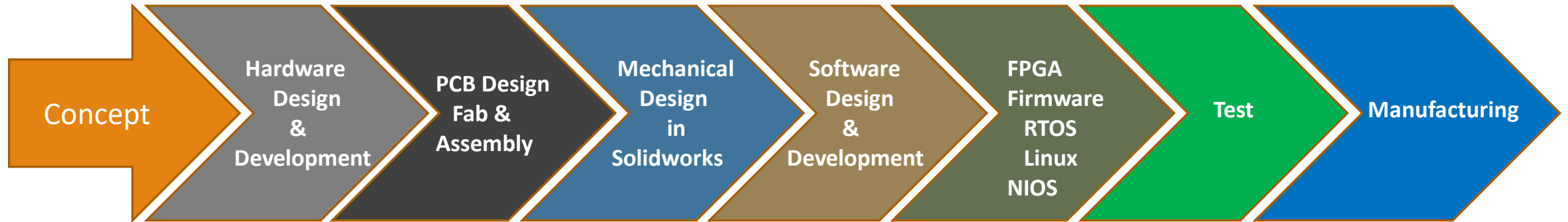
# About Us

- ❑ Electronic Engineering and R&D Service Company in Richardson TX for 30 years
- ❑ Hundreds of man/years of Hardware and PCB Design
- ❑ Experienced Management and Engineering Teams
- ❑ Degreed, experienced Software and Hardware Engineers.
- ❑ Professional Engineering Firm licensed in Texas
- ❑ Owned by Engineers
- ❑ Design Engineering
  - Embedded
  - IOT
  - FPGA
- ❑ Software Engineering
  - Embedded
  - Application
  - Internet
- ❑ Manufacturing
  - SMT line
  - Prototype to medium volume
  - MRP-II inventory control
  - ISO-9001:2015





# Engineering Services



NDA,  
Concept,  
Functional  
& Design  
Specification,  
Architecture

H/W Design,  
Components,  
Orcad/Pads,  
Schematics  
BOM,  
Prototype

Foot Prints,  
Outline,  
LayersStackup,  
Signal/Power,  
Controlled Z,  
Gerber

Concepts,  
Sheet Metal &  
Plastics  
Rendering,  
Drawings  
Silkscreen

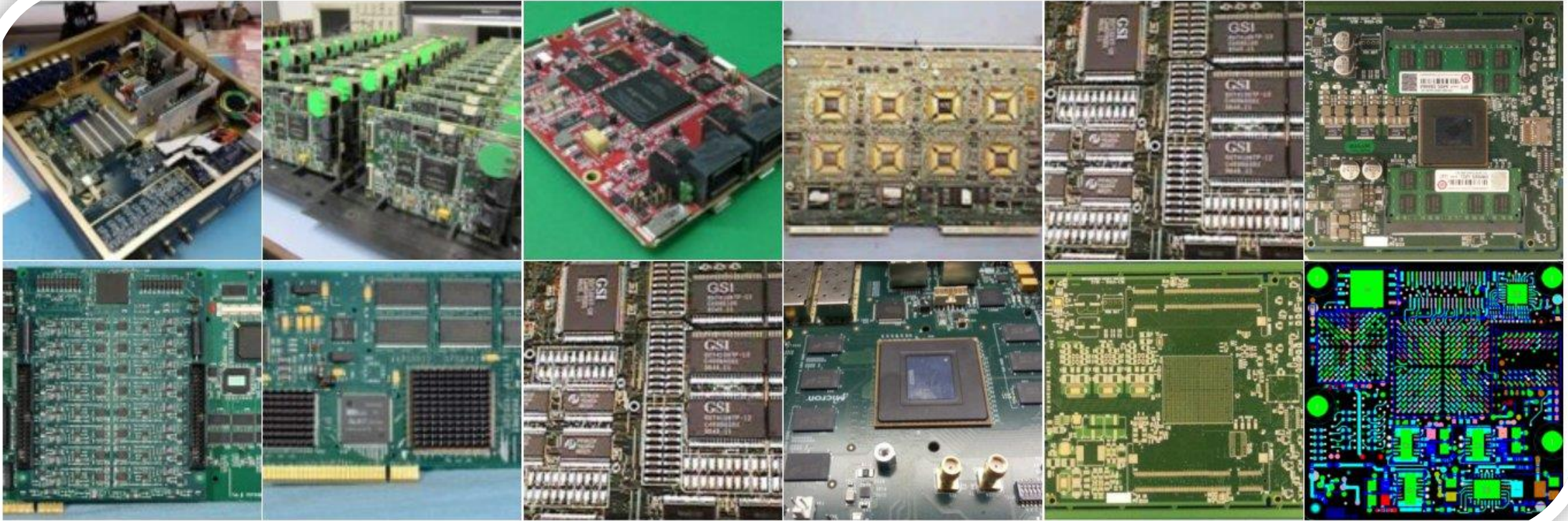
C, C++, C#  
Perl, Python,  
JavaScript,  
Java, Android  
Amazon AWS,

Driver and BSP  
development,  
Application  
Development,  
Client/Server  
IOT, VHDL,  
Verilog

Compliance  
FCC/CE/UL/CE  
Mark,  
Test Jig  
Development,  
Procedures

Manufacturing  
is a step away.  
MRP-II,  
Consignment  
SMT to 1 mm,  
BGA





# FPGA Designs

---



## All major vendors:

Altera, Xilinx, Microsemi, Lattice, VHDL or Verilog coding, Altera MAX, Cyclone, Arria, and Stratix FPGA's

EDK, AXI Embedded uP (ARM, Nios, MicroBlaze) Linux BSP and Software Dev.

## **Core Products and Experience:**

- H.264 Encode/Decode Video
- Dolby HD JPEG Encode/Decode
- PCI/PCIe + DMA Display Controllers
- Image Processing Mod/Demod USB
- FPGA Verification
- Test bench generation
- Functional simulation and assertions
- Code and functional coverage
- Post-synthesis simulation Script creation (tcl, perl, etc...)

# Nios® II

# XILINX®

# ALTERA®

now part of Intel



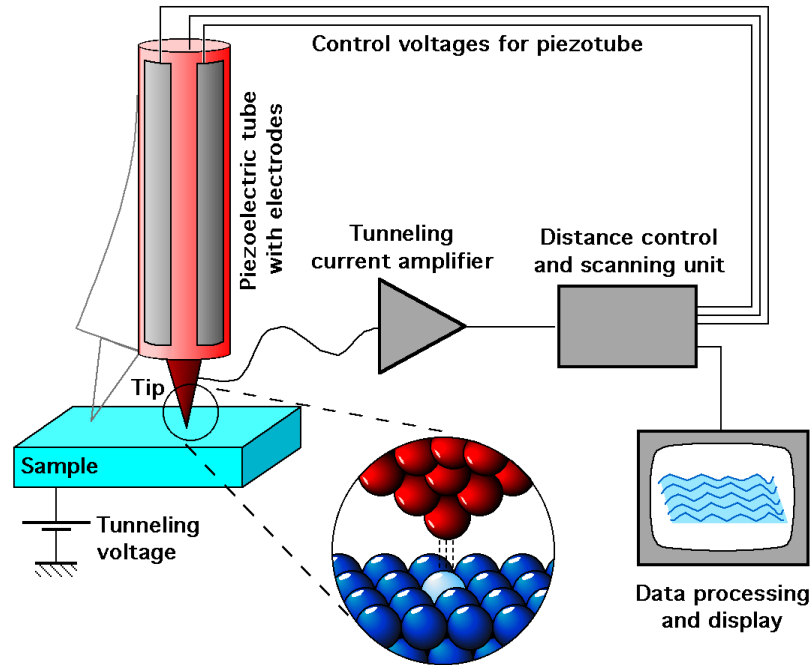
## FPGA Design Solutions Network

Gold

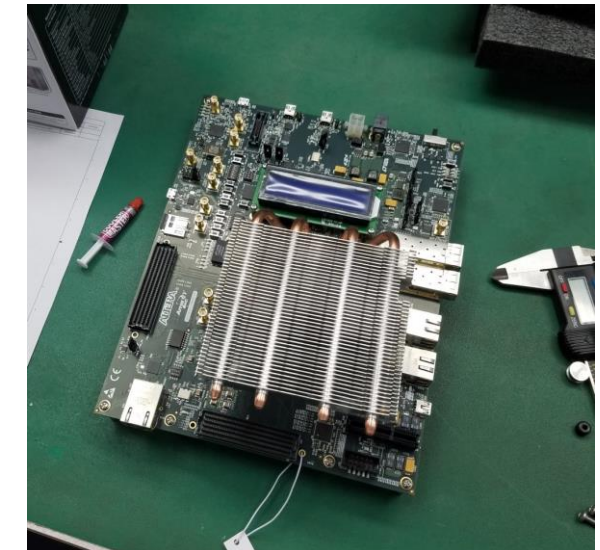




H.264 video compression  
DVI 1080p30 video input  
HDMI Input & Output  
Linux and QT  
UDP/TCP  
Real Time video streaming  
over LAN  
1.5GHz 2 Channel Digital  
Storage Scope (DSO)  
8 Channel Arbitrary  
Waveform Generator  
STM Lithography  
High Speed Printers



A scanning tunneling microscope (STM) control system designed to perform high-throughput, automated, atomic-precision STM lithography.





# FPGA Design

Thermal cameras & Night vision cameras, Military and Aerospace cameras, Digital Fusion Weapon Imaging and rifle scopes

T-1 time slice unit, 24-bit decimator, VDSL controller for 24 Mb/sec links

3 Channel Video Mux and Display Controller

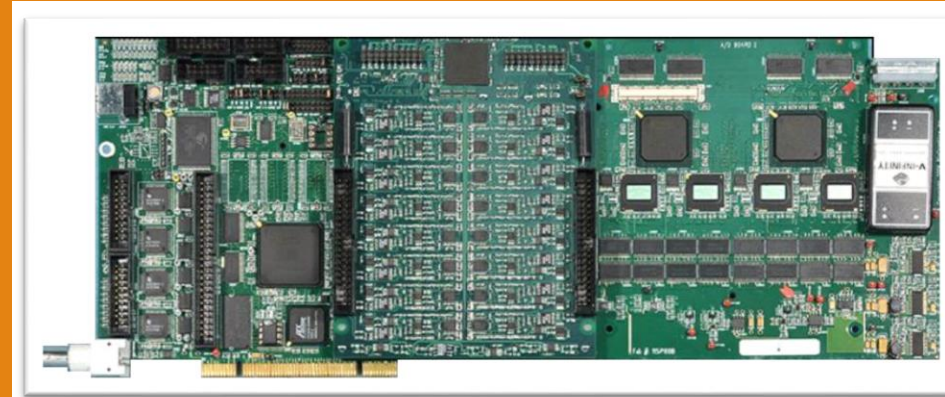
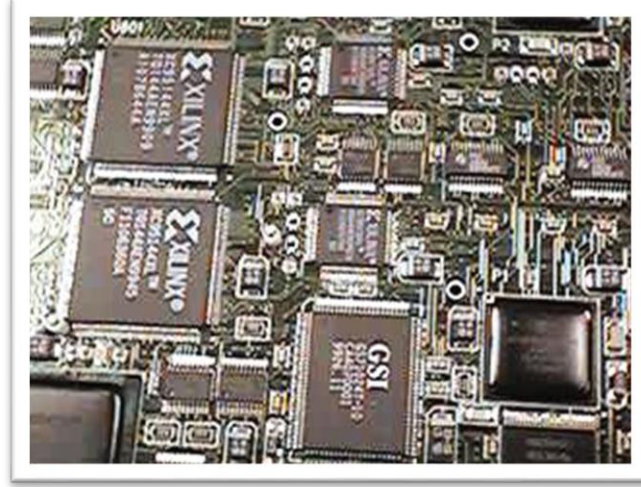
4 Channel 8VSB studio HD Tuner

High Speed dual ARM cores with Load balancing between ARMs

Octal DSPs for Navy Light Hybrid Torpedo and Telecom Systems

Networked DVR

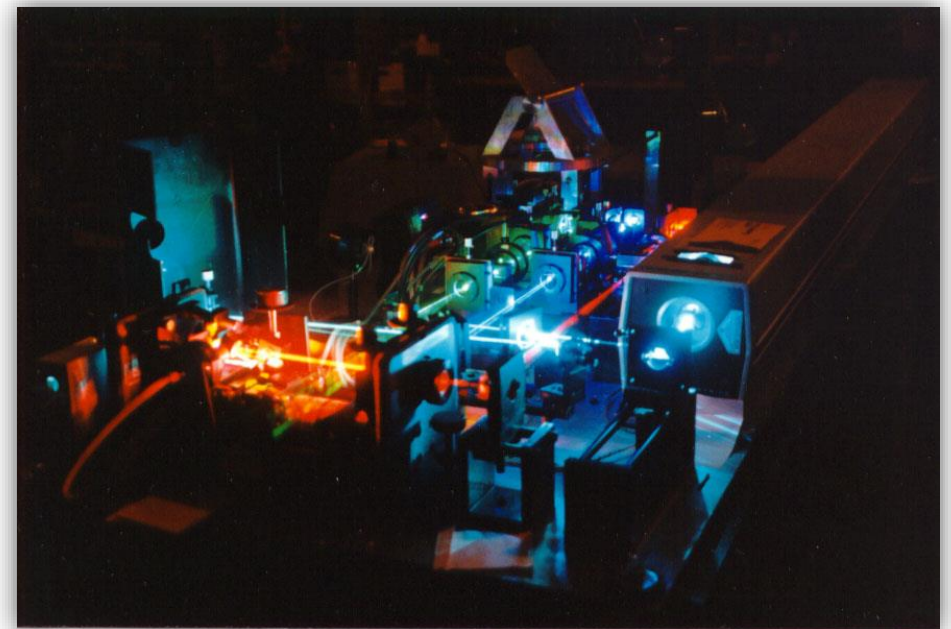
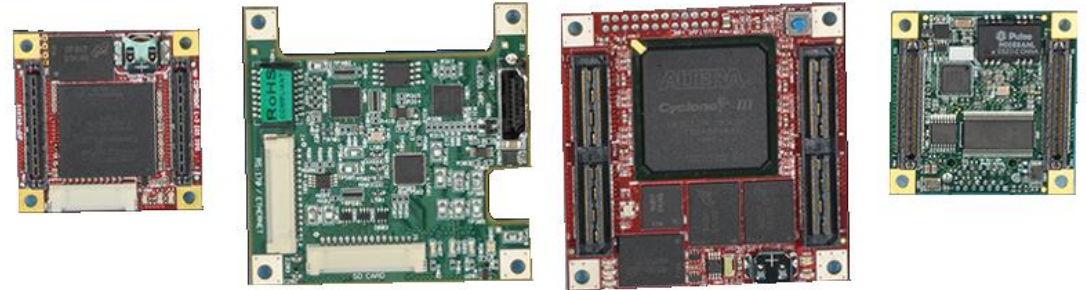
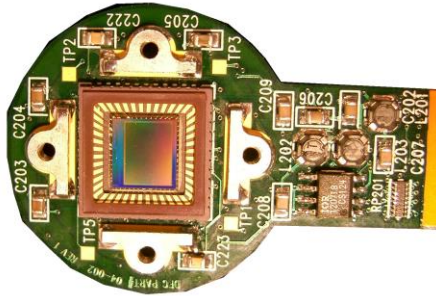
- SATA
- DDR III memory
- 1G Ethernet
- USB Input
- On screen display





# Video Designs

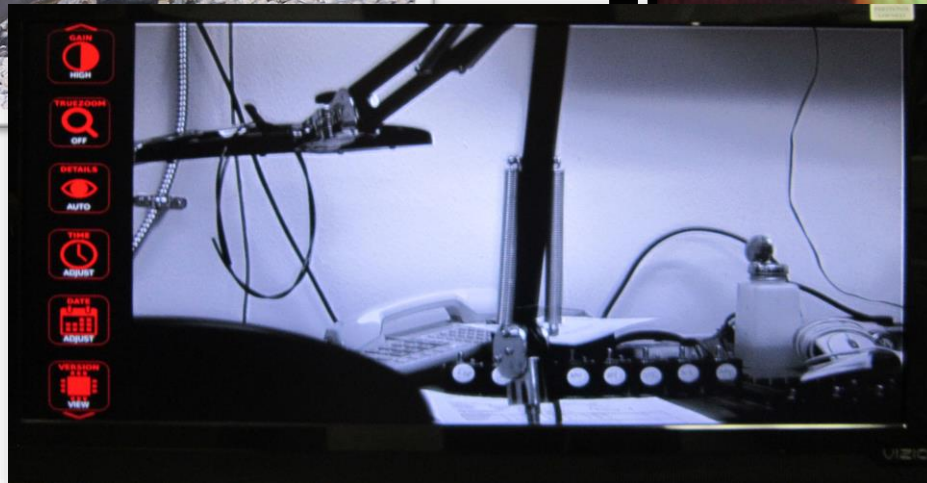
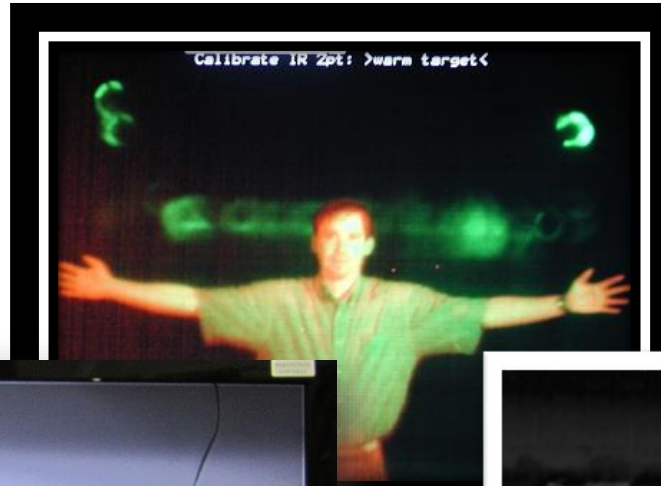
Many generations of digitally combined Image Fusion systems and dozens of Laser, Thermal, IR, and DVR/camera designs





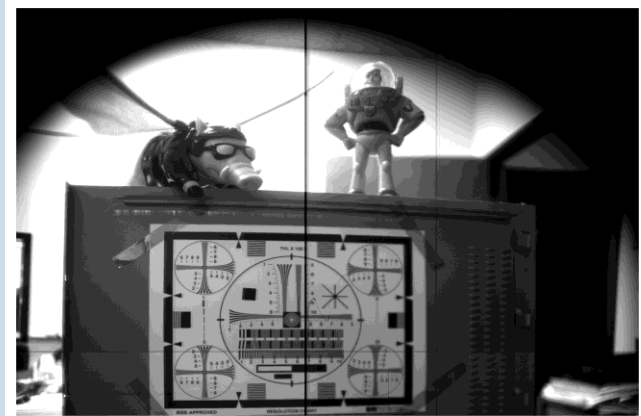
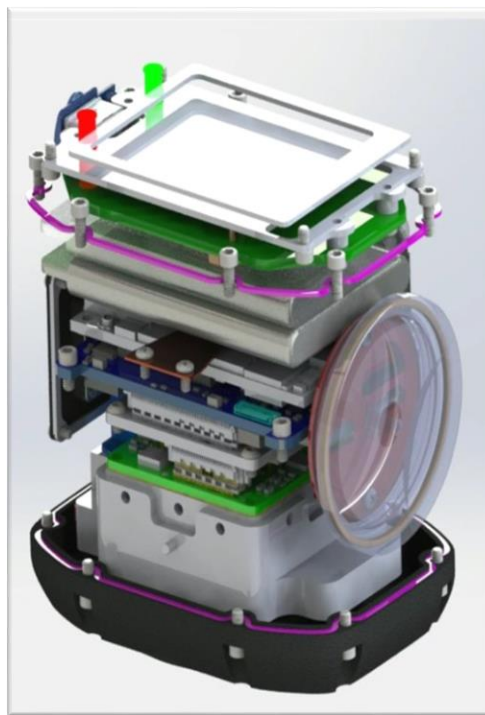
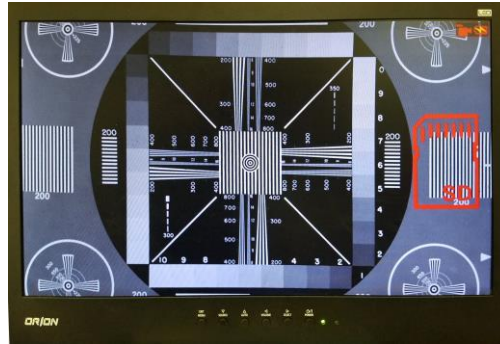
# Video Designs

Many generations of digitally combined Image Fusion systems and dozens of Thermal, IR, and DVR/camera designs









# Night Vision Cameras

1.3 MEGAPIXEL NIGHT VISION

VIDEO CAMCORDER

EXTREME LOW LIGHT CAPABILITY

IPC-65 WATER RESISTANT DESIGN

C-MOUNT LENS

HDTV OUTPUT

USB/WIFI

MICRO SD CARD



# Night Vision Cameras

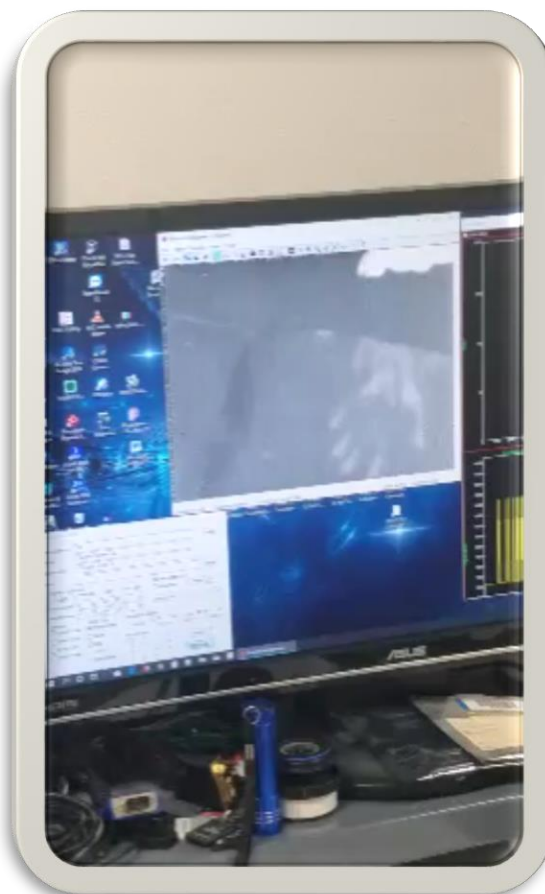
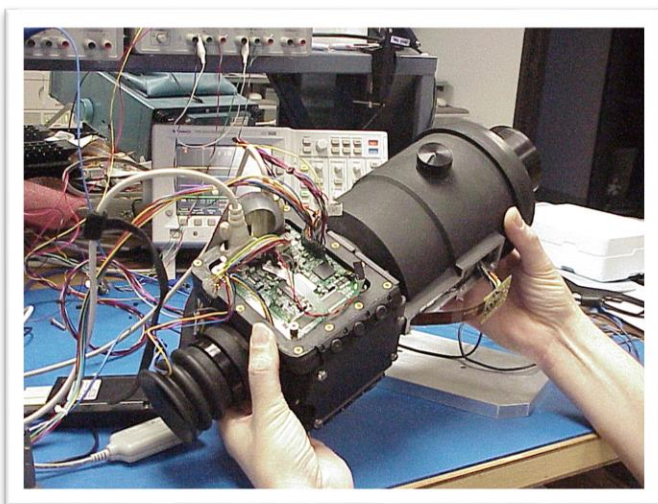


- Day to Low light
- High frame rate
- Optimized for mobility
- OEM Interface
- Total read-out noise below 4 e volts
- 10/8-bit CameraLink® compatibility
- Analog video NTSC/PAL
- SDI Digital Output
- Mini display
- Color or B&W





# Digital Fusion Night Vision + Thermal







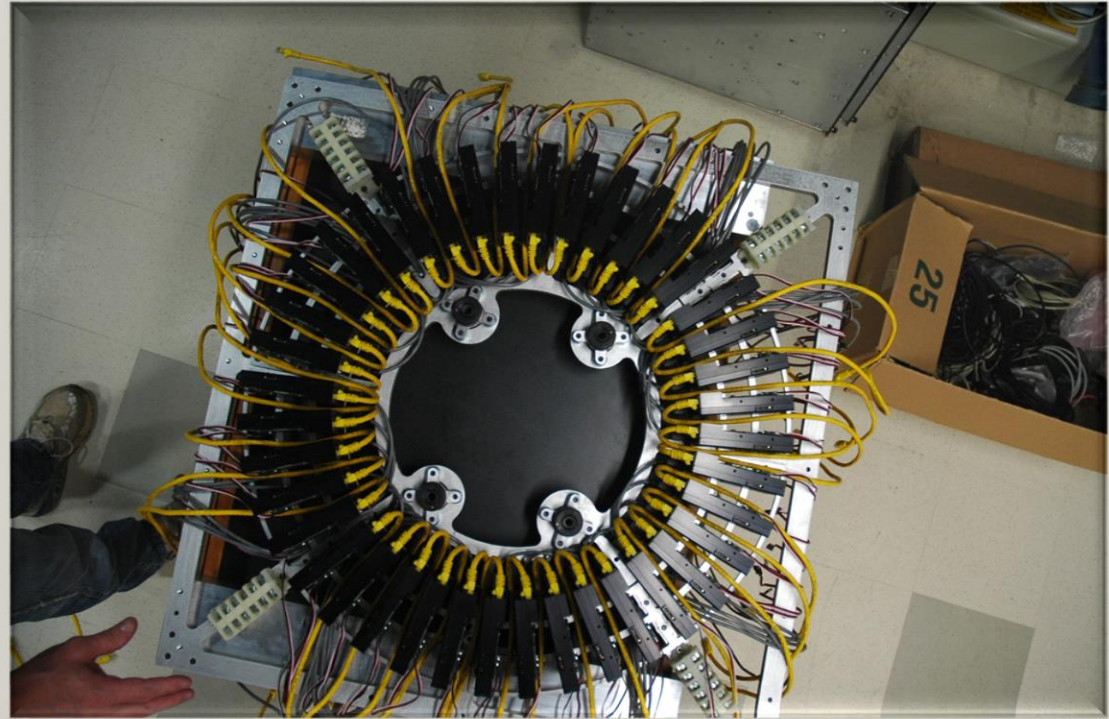
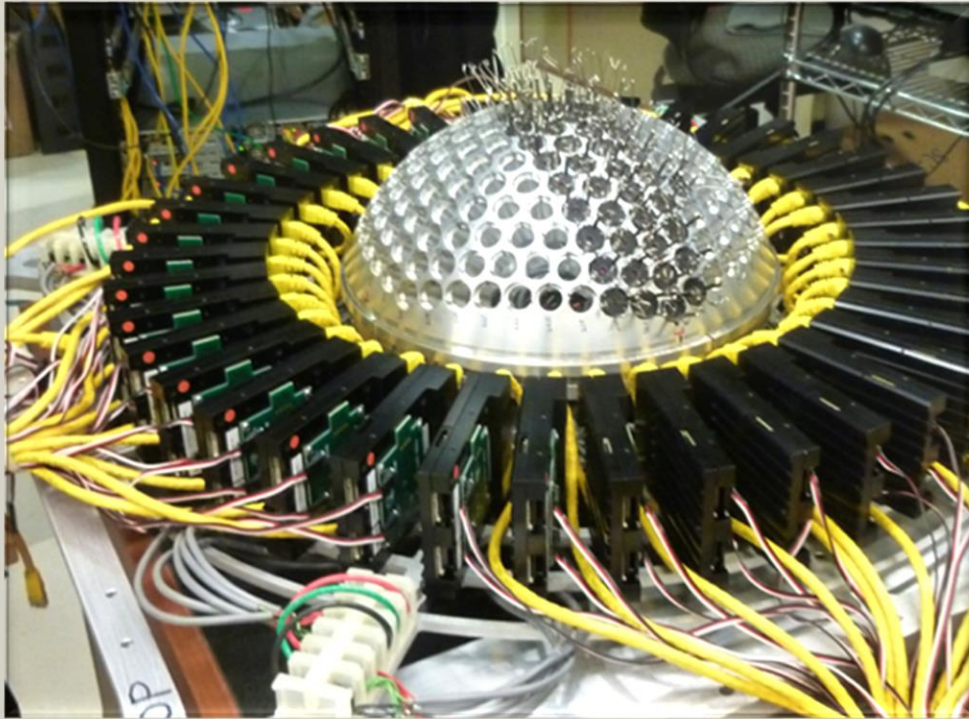
# Gigapixel Camera





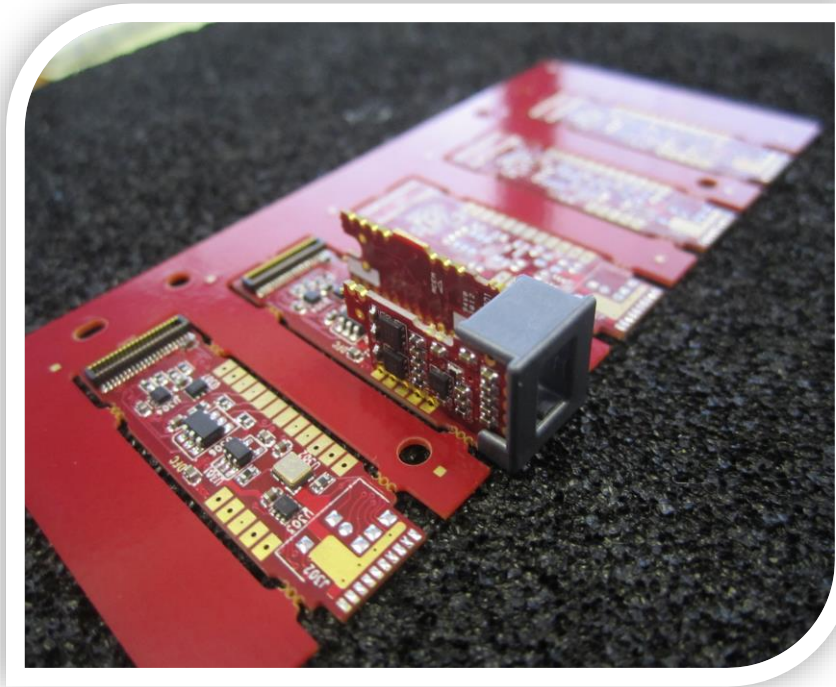
# Gigapixel Camera AWARE 1

FLY'S EYE ASSEMBLY AND INTERCONNECTION OF VERY HIGH SPEED CABLES



# Gigapixel Camera AWARE II

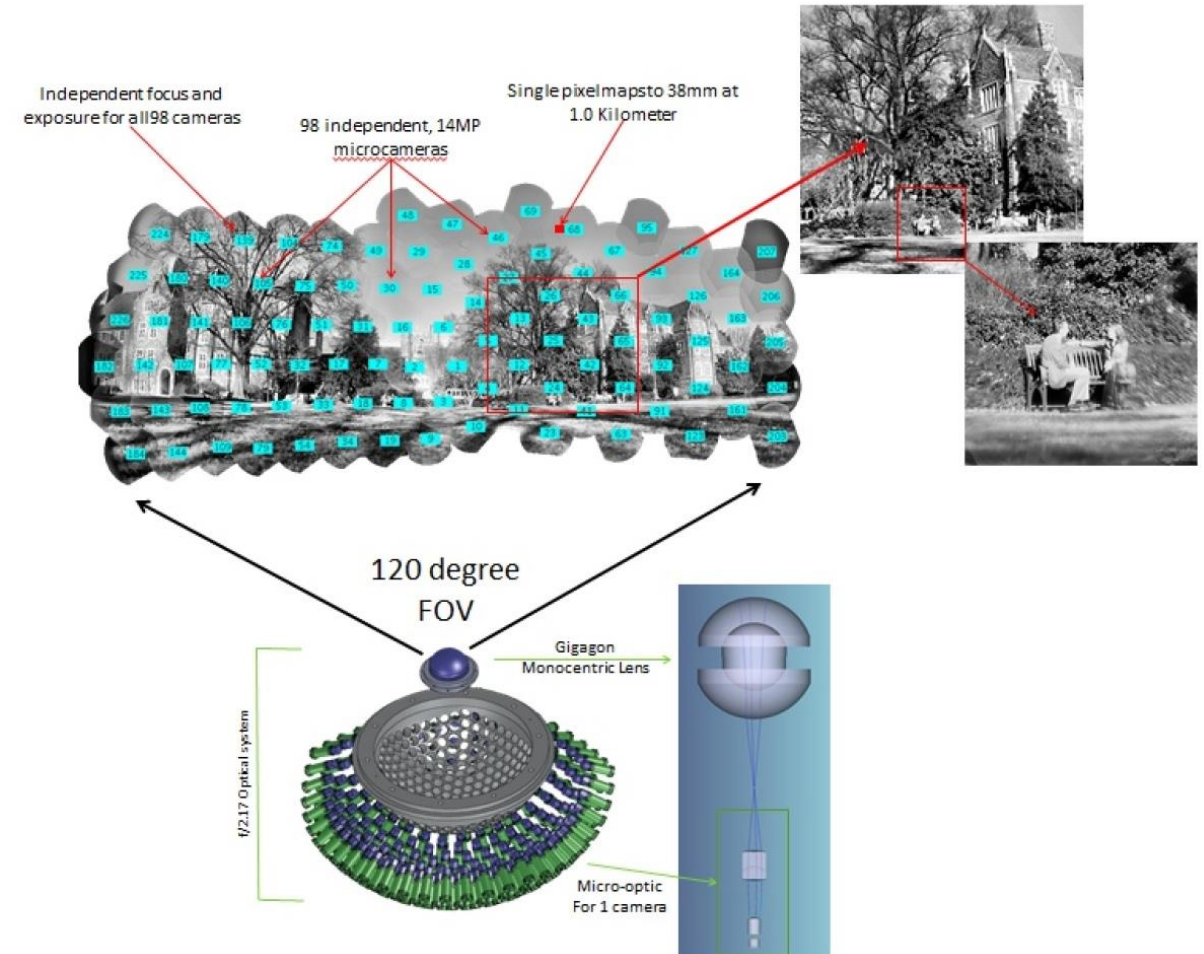
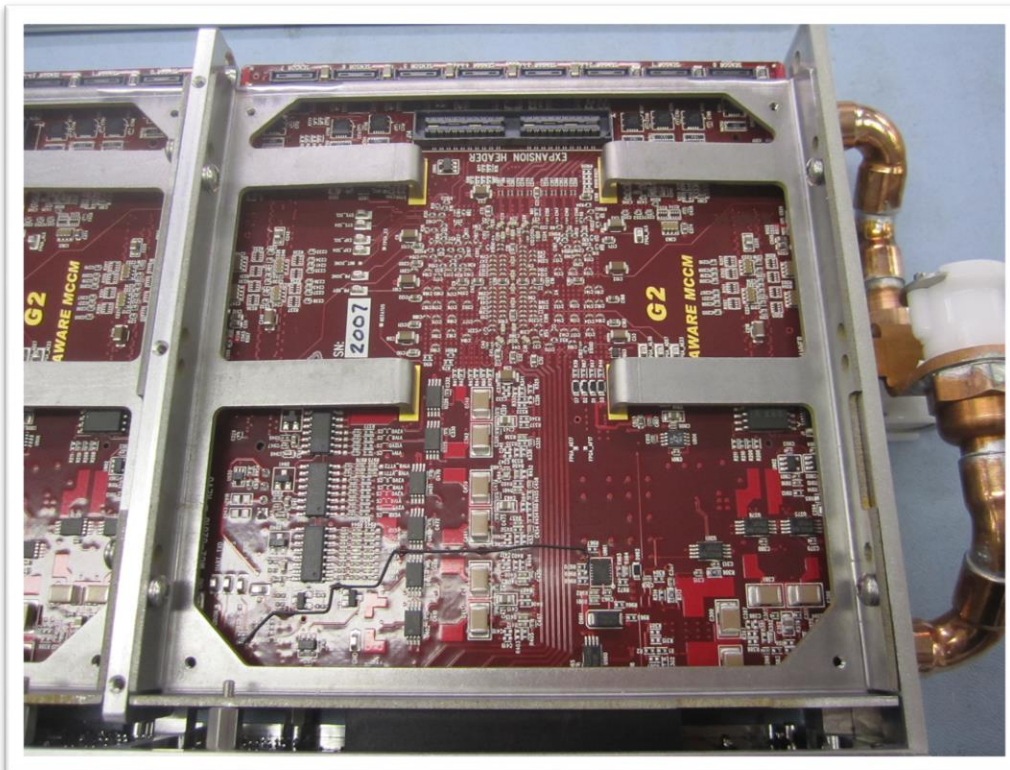
3D PCB - 14 MEGAPIXEL CDD WITH MICRO FOCUS MOTOR AND FLEX CABLE





# Gigapixel Camera AWARE II

TERABYTE SCALE DISTRIBUTED FPGA+CPU





ACC Championship - Duke vs Florida - Second Quarter by Duke Imaging and Spectroscopy Program



# Gigapixel Camera

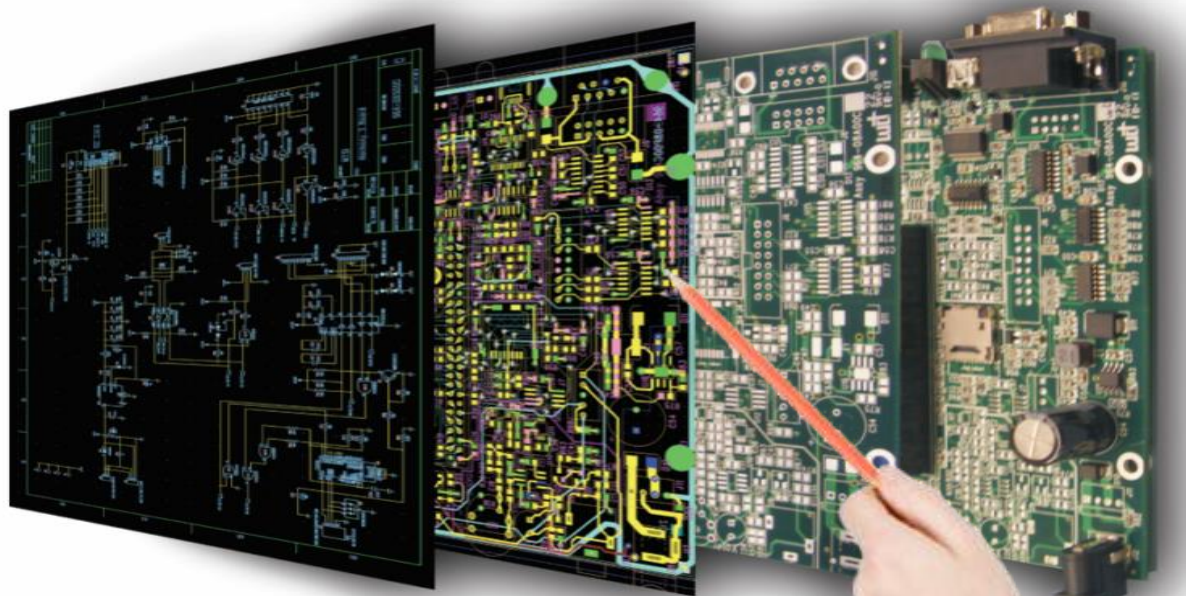
ACC CHAMPIONSHIP - CLICK PHOTO FOR GIGAPIXEL PREVIEW OF 1 FRAME



# Hardware Engineering Case Studies



X 2



**SMALL BUSINESS**  
EXCELLENCE AWARD  
FINALIST



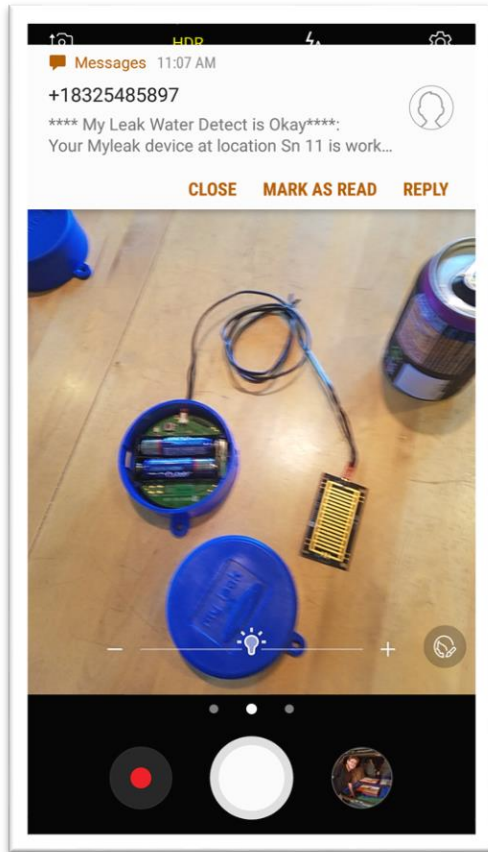
# Embedded Design

I2C TEST SIMULATOR/CONTROLLER, PRINTING PRESS CONTROLLER, STROBE LAMP, PA SYSTEM, RF, 4 INPUT, 4 OUTPUT, 128 INPUT, 1 INPUT/1 OUTPUT, RFID SYSTEM, PAGER, 16 TO 64 OUTPUT, WIRELESS LOCATOR, POLICE AND EMERGENCY RESPONSE RADIO SYSTEMS





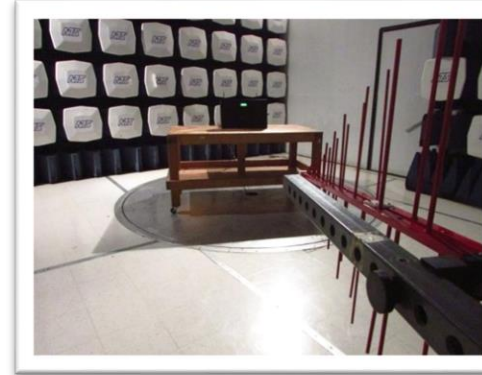
# IOT Design



Bluetooth & PI



Wifi Hub  
Sensor/Controller



Wifi/Ethernet



Cellular

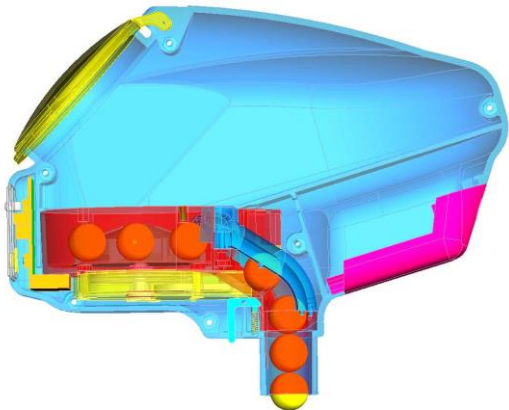
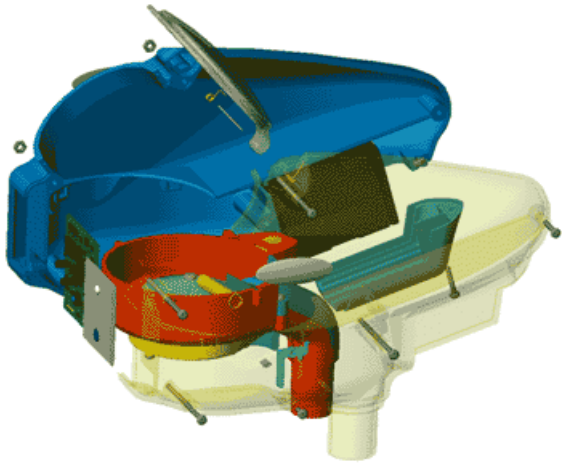


Bluetooth Pump



Wifi Shock Recorder

# Consumer Products Design

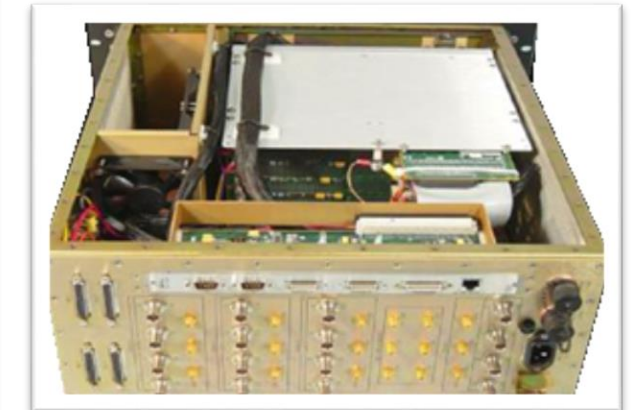
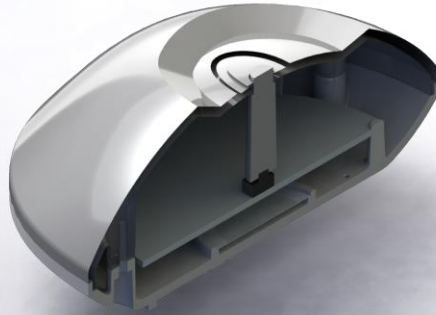
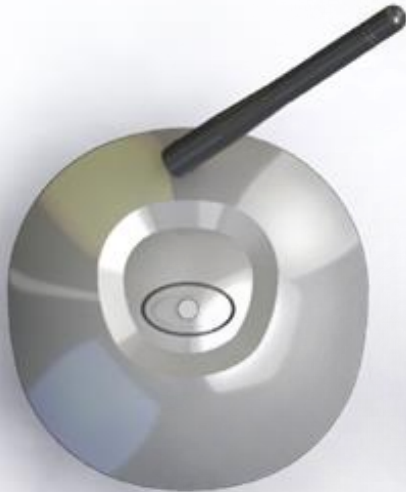
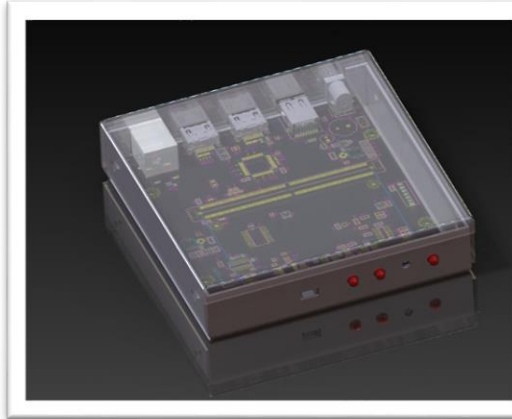
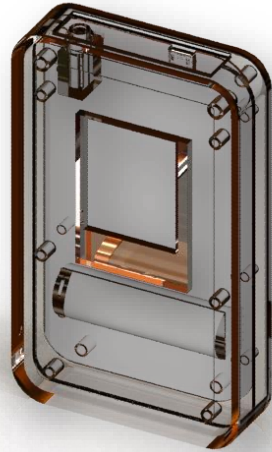
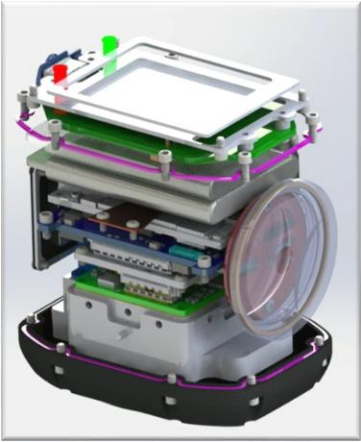




# System Design



# Electro-Mechanical Design





# Data Acquisition

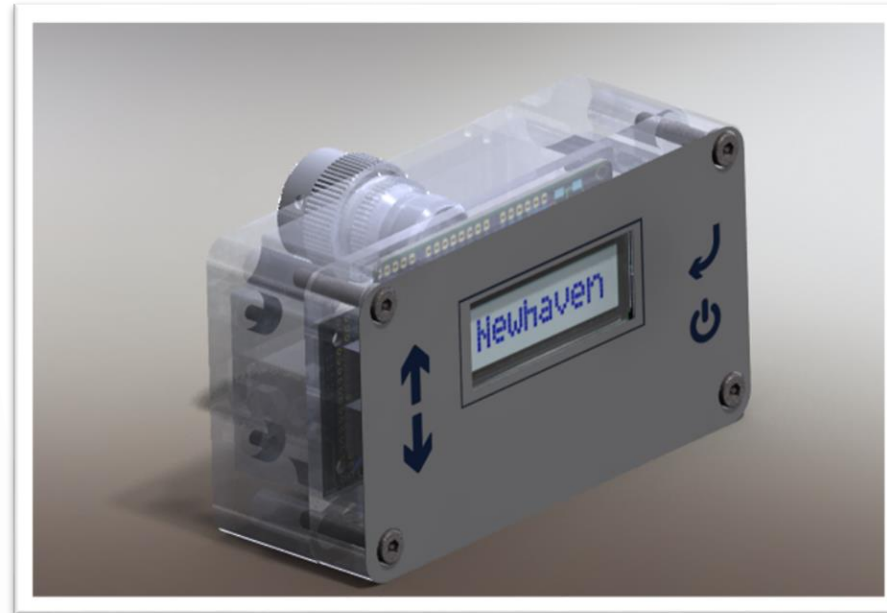
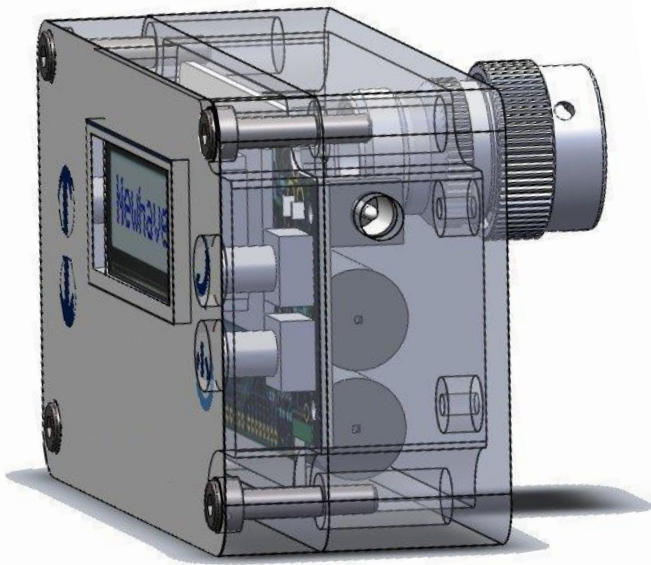


Sophisticated Valve Diagnostic System  
Portable, Wifi Enabled, Water/Dust Resistant



# Data Acquisition

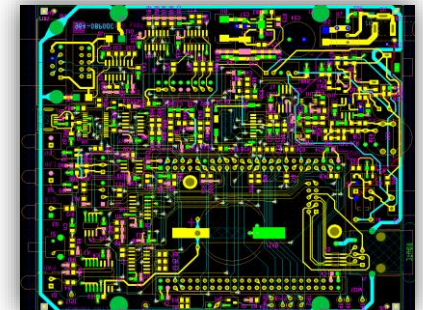
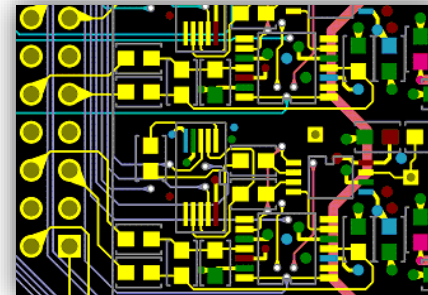
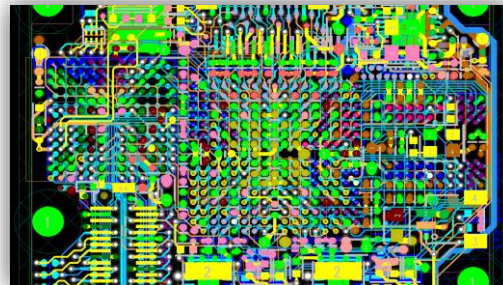
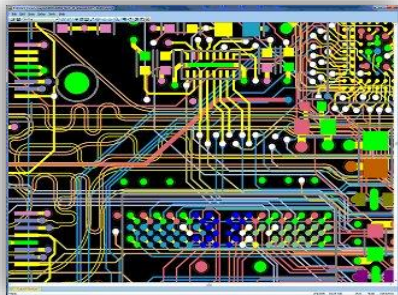
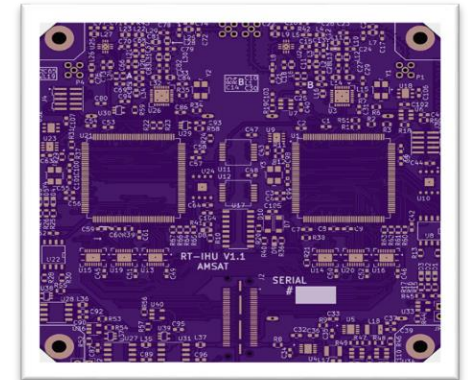
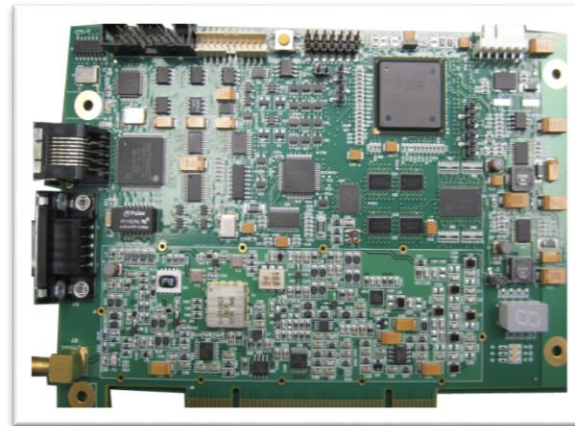
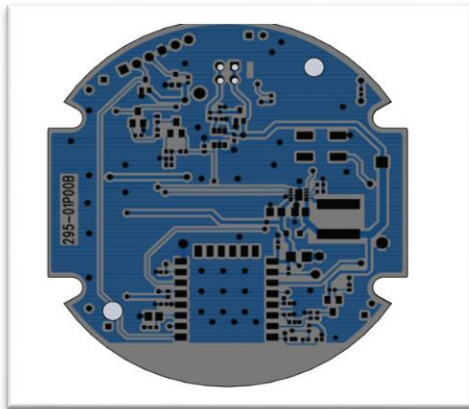
Portable, Battery-operated high precision travel calculator





# PCB Design

22 layers, mixed RF/Analog military-qualified metal core conduction cooled cards rated to 400 G's. 9 DSPs on a PCI card and 8 DSP's on a VME card. High temperature downhole tools, the U.S. Navy's Light Hybrid Torpedo and to applications in outer space for a medical experiment controller in the Space Station.



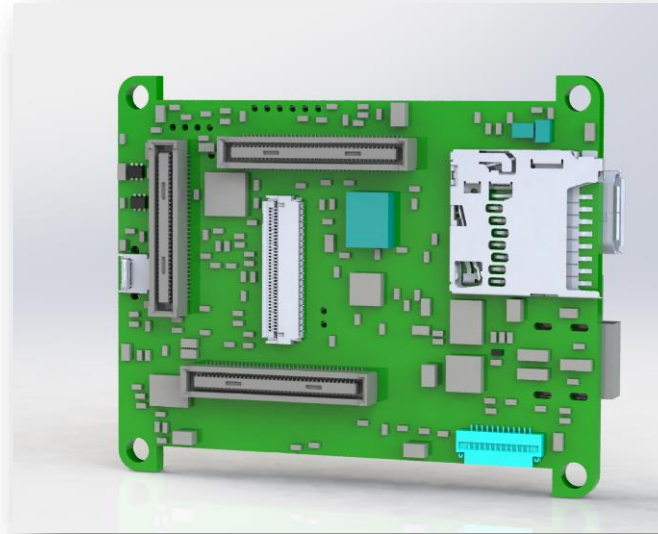
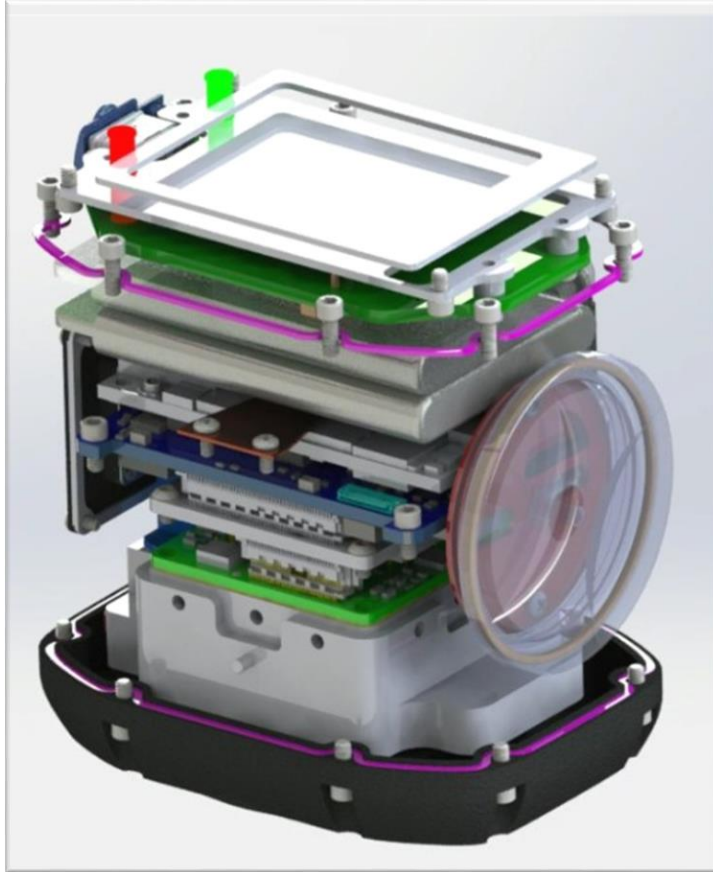
# PCB Design

---

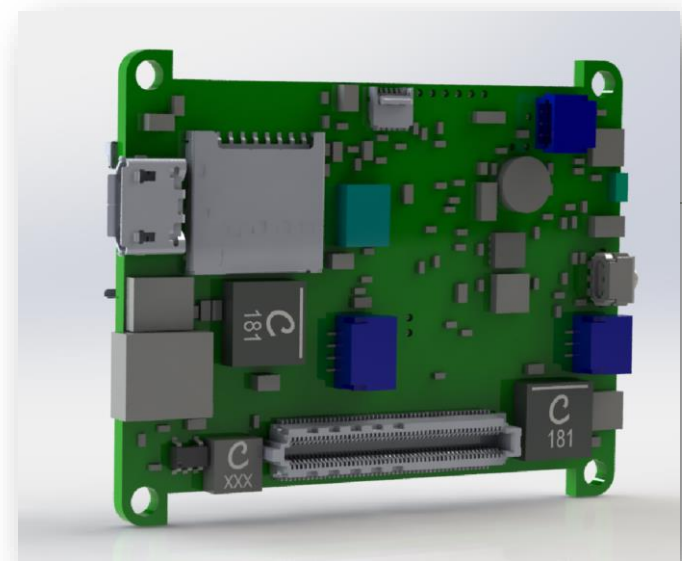
- PCB LAYOUT
- MENTOR PADS / ALTIUM LAYOUT
- SCHEMATIC ENTRY
- ORCAD CAPTURE/ALTIUM/PADS LOGIC
- SIGNAL INTEGRITY/POWER INTEGRITY
- CAM 350
- AUTOCAD
- SOLIDWORKS

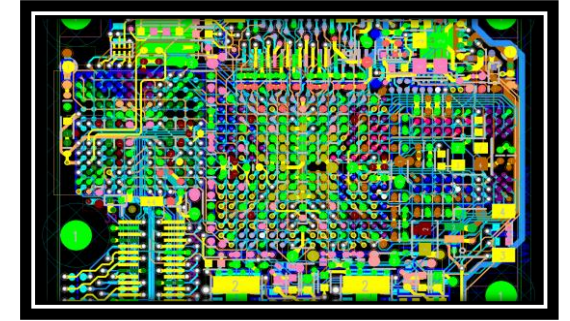
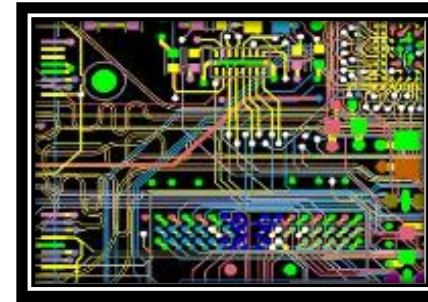
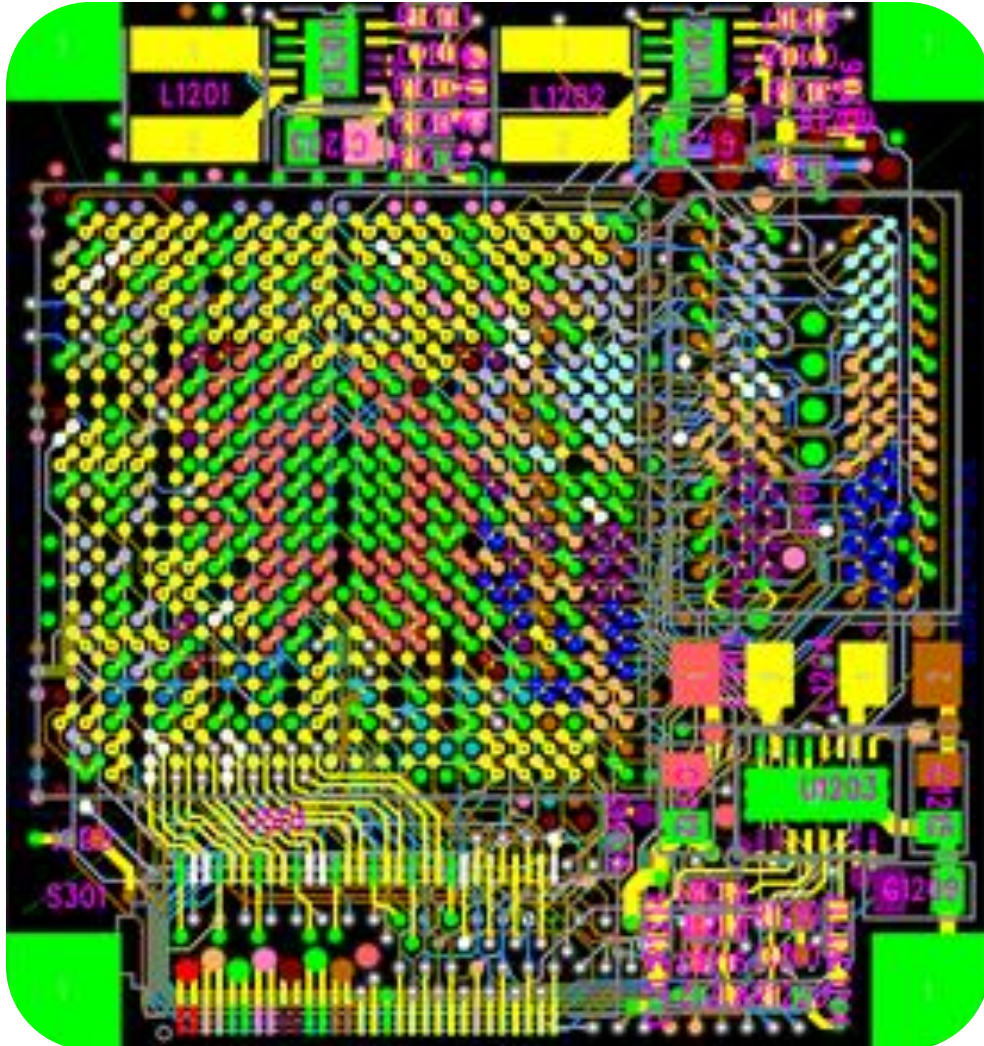




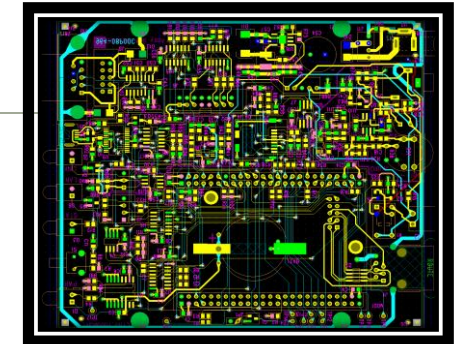
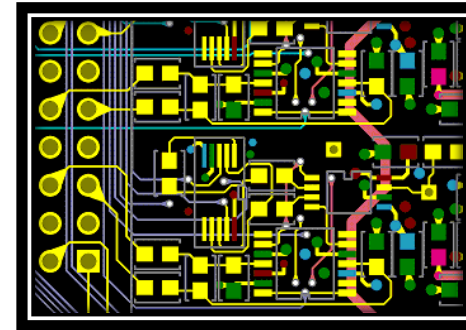


# 3D PCB Design

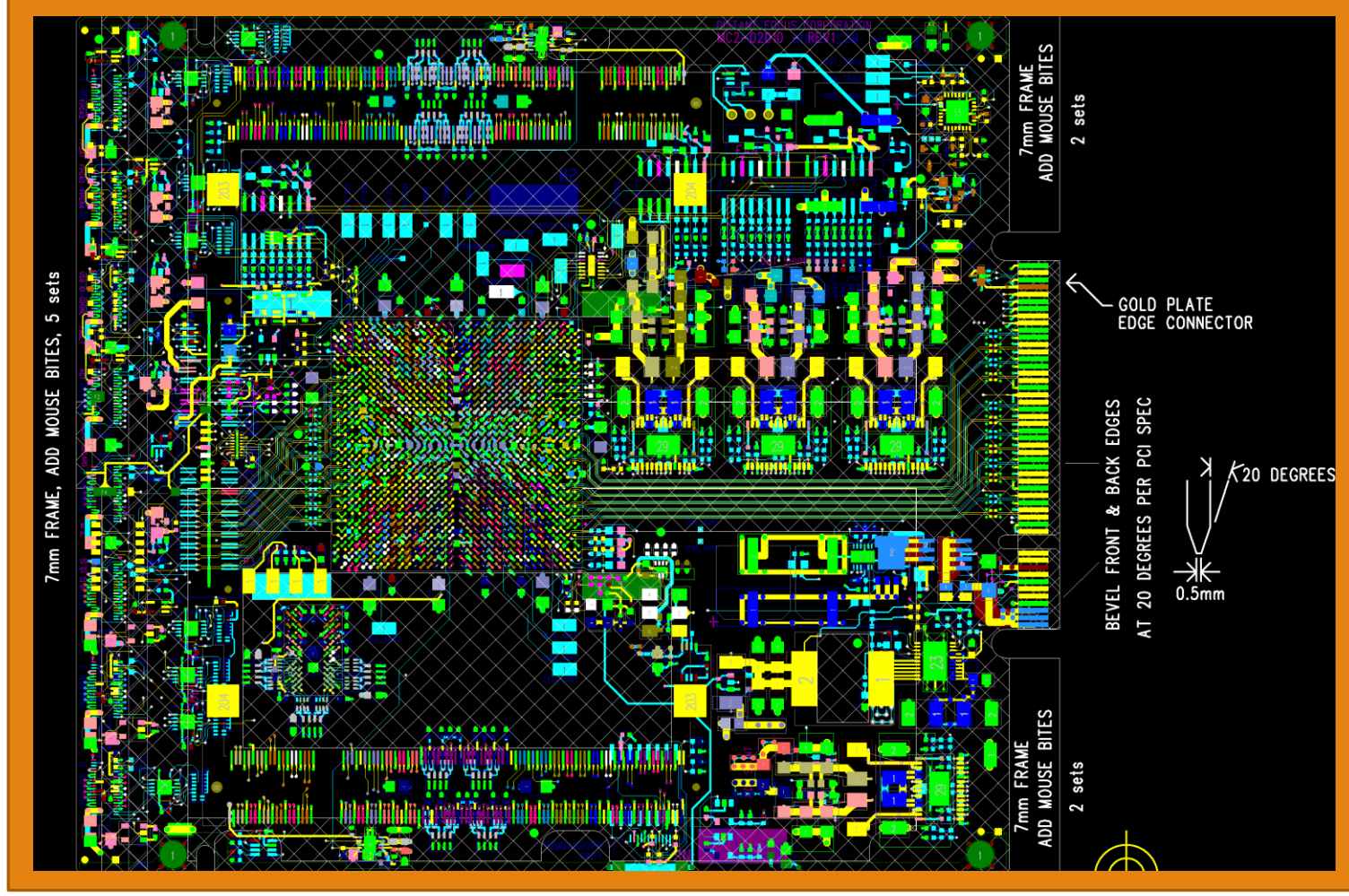




FPGA PCB



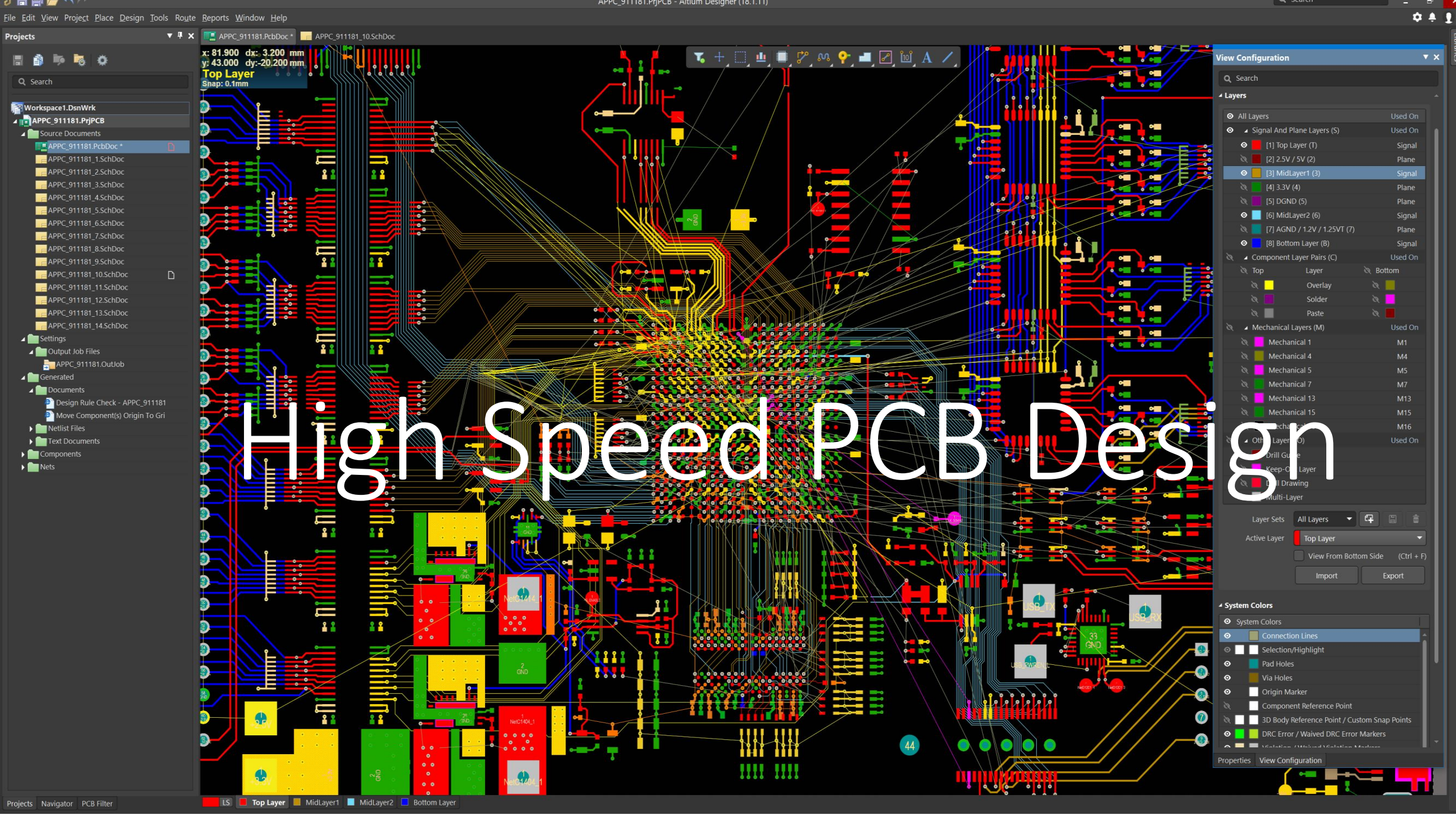




# Analog PCB Design

---





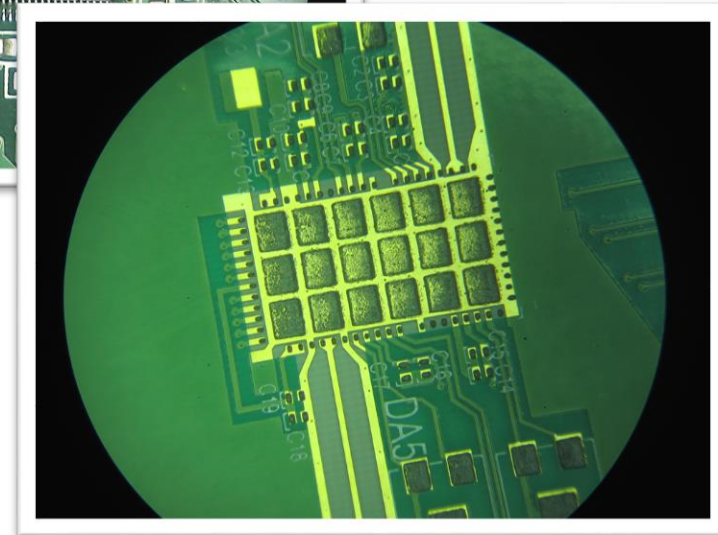
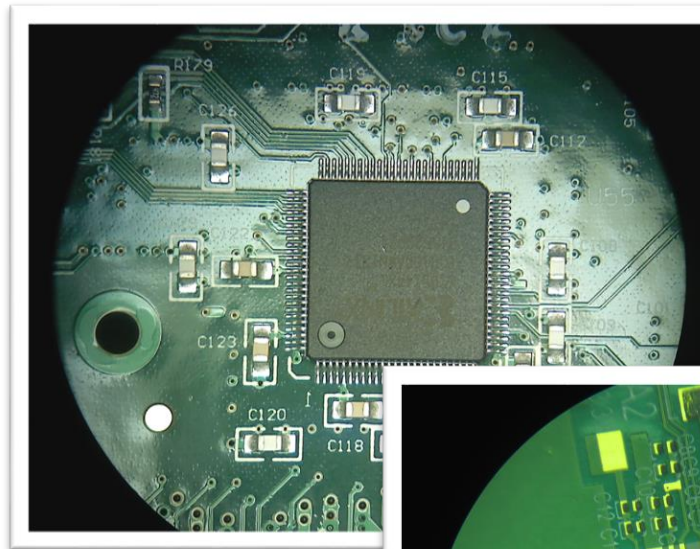
# High Speed PCB Design



# Manufacturing Services

- Access to Design Engineers
- Pay-as-you-go as-needed.
- Material Procurement
- MRP-II computerized operation
- Access to In-house stock of parts
- Customer-Supplied Material
- Circuit board Assembly
- Mechanical Assembly
- Lead and lead-free RoHS

Be  
faster  
smarter  
more  
agile



# Manufacturing Services

Prototype and Production

Serial number or lot traceability

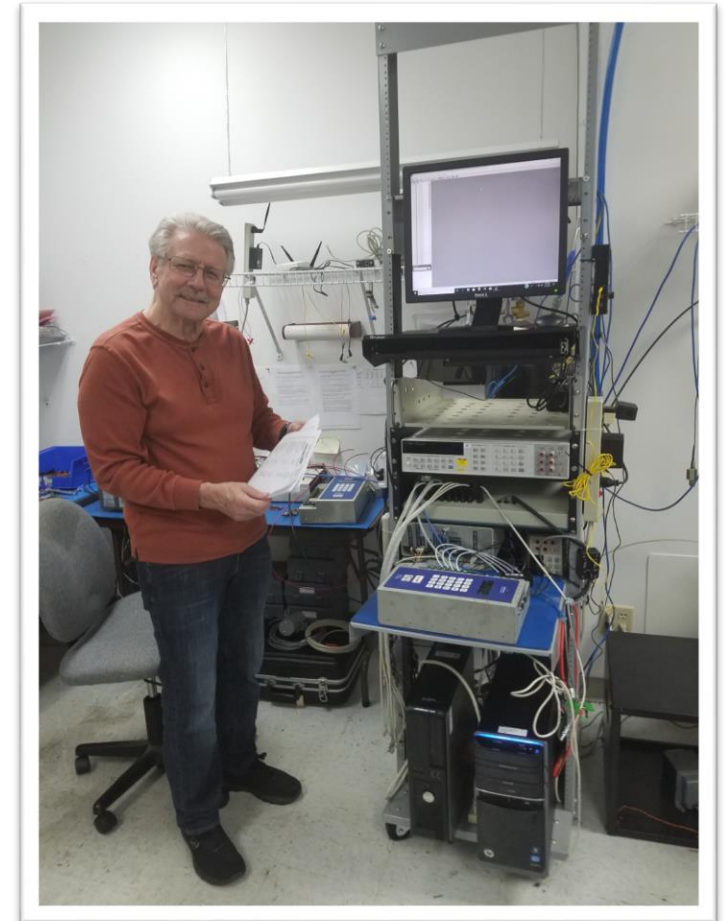
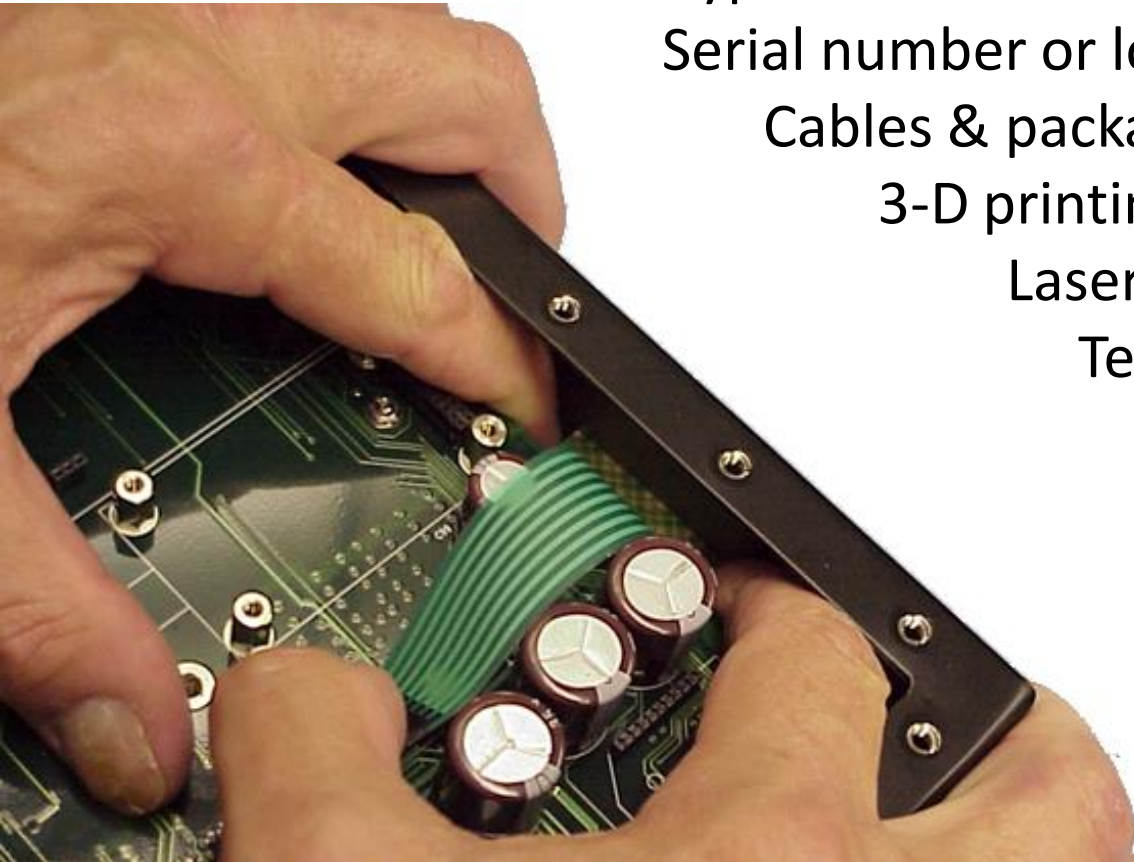
Cables & packaging

3-D printing

Laser Cutting

Temperature testing

Functional Test





# Manufacturing Services

---

SMT 0201 and BGA placement



Lead Free Processes







## Partners



[sales@mitsi.com](mailto:sales@mitsi.com)

1819 Firman Dr. #137  
Richardson, TX 75081-1968  
972-231-6874

---

