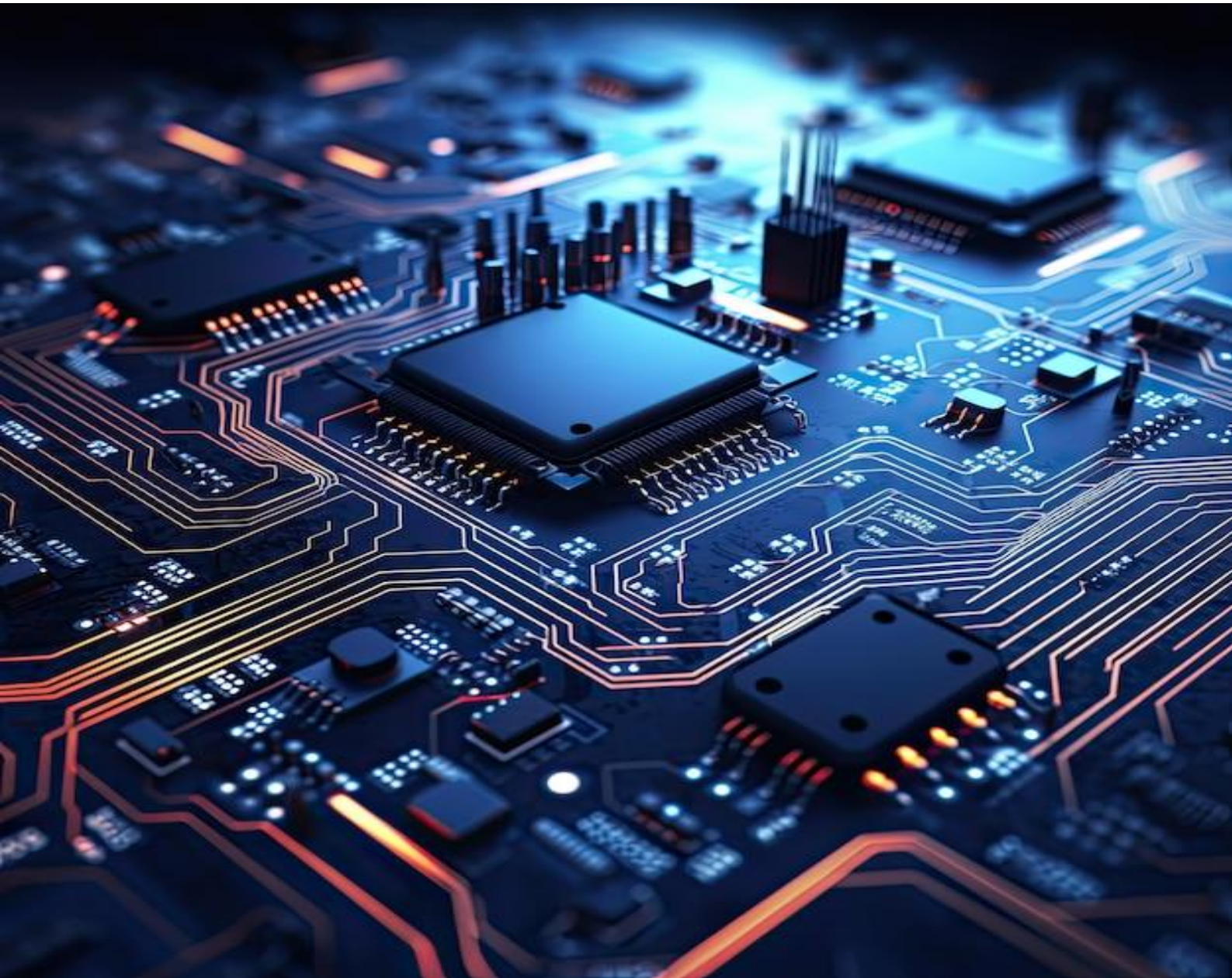




Glorious Circuit Technologies

Stepping Forward.....





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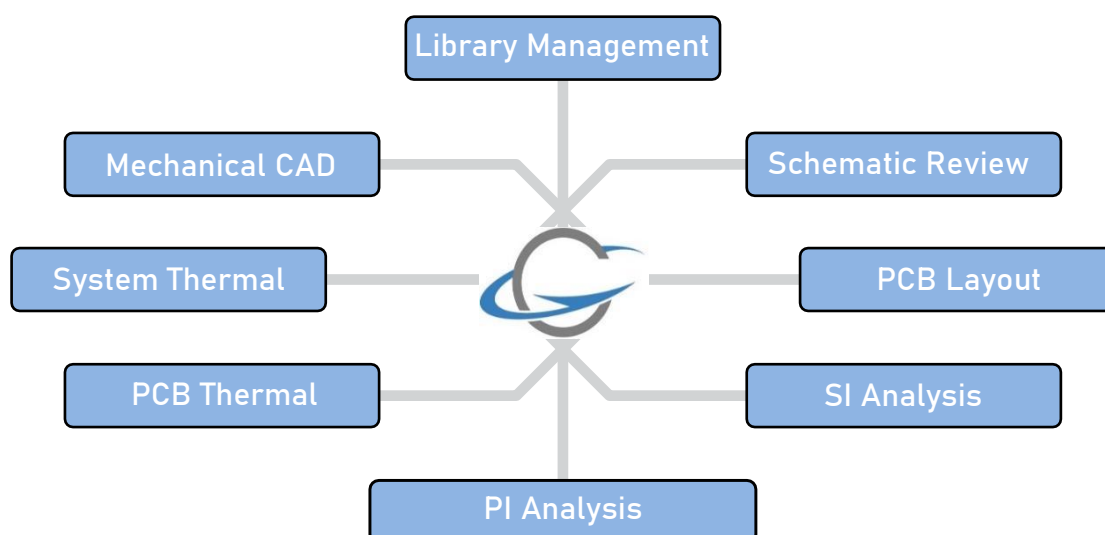
Profile Introduction

Glorious Circuit Technologies has expertise in the field of PCB Engineering solution. We pride ourselves on open dialogue, transparency & mutual creativity. Together with the dedicated team of Engineering experts, no challenge is beyond us.

Glorious Circuit Technologies support customers globally, to provide sustaining engineering support throughout the product cycle time. The team also provides engineering support for cost reduction, Re-engineering, High Speed PCB Design, SI Analysis (Time Domain and Frequency Domain analysis), EMI/EMC and Reliability Analysis.

Why Glorious Circuit Technologies ??

- Reliable Partner for PCB Engineering services
- Library Management
- Schematic Drafting
- PCB Layout Services
- SI / PI Analysis
- Thermal Analysis
- Structural Analysis
- Mechanical CAD
- Harness , Fabrication & Assembly – 3rd Party Support





Glorious Circuit Technologies

Power Integrity Analysis

01

- 3D Voltage Distribution Plot
- 3D Current Distribution Plot
- 3D Power Loss Density

02

- Analyze & List temperature of planes, pins& vias

03

- S-Parameter Model Extraction
- 3D Field Plots & Current Density

04

- Qualify Factor for the PDN 3D Filed Plot

Signal Integrity Analysis

Connector
effect
Analysis

Eye Diagram
Analysis

Analysis of
Via Effect on
Channel

SerDes
Modelling

S-parameter
Extraction

Thermal Management

PCB Thermal
Analysis

System
Thermal
Analysis

Mechanical

Structural
Analysis



Glorious Circuit Technologies

Our Expertize

- Ethernet Over Backplane
- Fibre Channel (SFP+, QSFP), DDRx
- 1/10G Line Card, USB, Bluetooth, Wi-Fi
- SERDES, XAUI, SRIO, GPS, RF & Microwave
- USB, SATA, HDMI, SAS3, NVMe, HDD/SSD, SAS expanders
- PCIe Switches / Controllers, PCIe add-on
- PXIe, LXI, VXI, VME, High Vg / Ct, RTD
- Switch / Matrix Cards, Digital I/O Cards, Backplanes, Break Out Box
- QPI/UPI, PCIE, DMI, QSGMII, SGMII
- DDR4/3/2, RDRAM, QDR, LPDDR
- PCI Express, PCI Express 2.0, PCI Express 3.0
- Handled Up to 100 GBps

EDA Tools Supported:

OrCAD Layout

Allegro Layout

Altium Layout

PADS Layout

Xpedition Layout

Ki-CAD Layout

Hyperlynx-SI/PI

Ansys-Thermal

SolidWorks-MCAD

Catia-MCAD

Creo-MCAD

NX-CAD

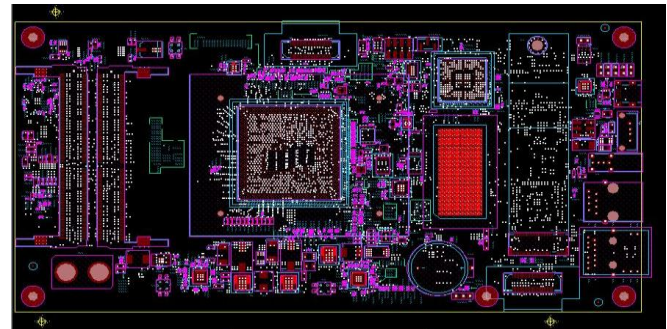
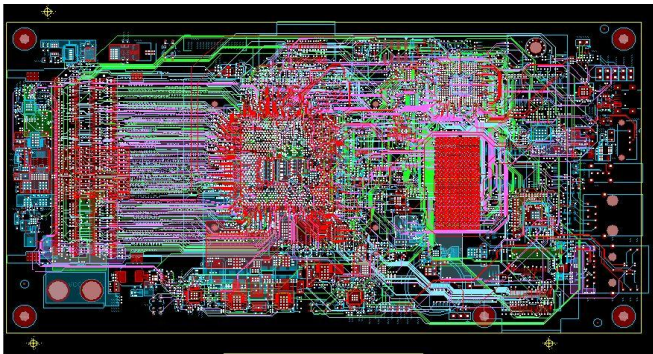
AutoCAD



Layout Case Studies

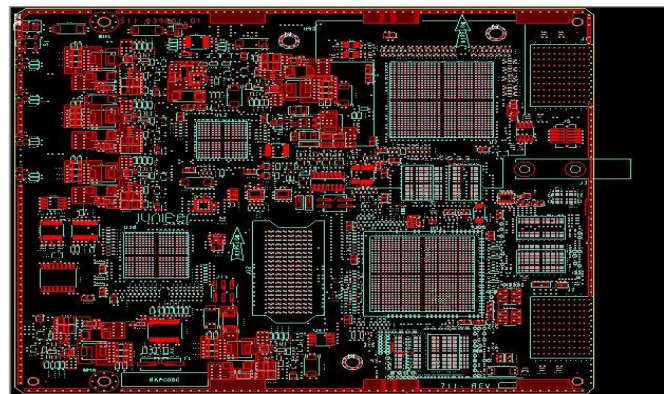
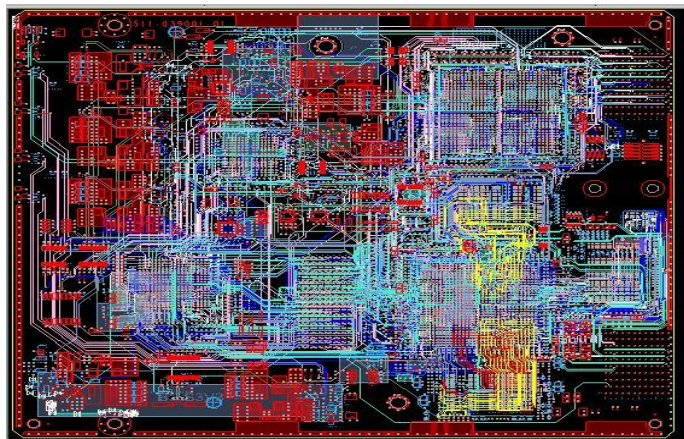
FALCON PROCESS MEZZ Card

- Board Size: 228MM X 116MM
- No Of Components : 1819
- No Of Connections : 5500
- No Of Layers : 14
- Board Material : FR4-HIGH
- Interfaces : DDR3, PCI-GEN2, SATA-2, USB2.0, SPI



4C0C-1C0C1-CE-BASE Card

- Board Size : 228MM X 116MM
- No Of Components : 1352
- No Of Connections : 6050.
- No Of Layers : 20
- Board Material : FR4/M6

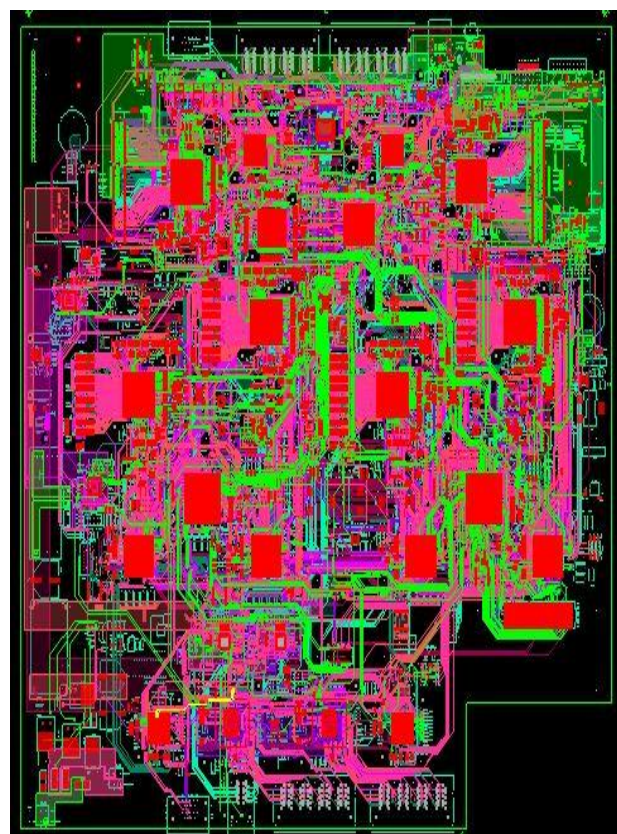
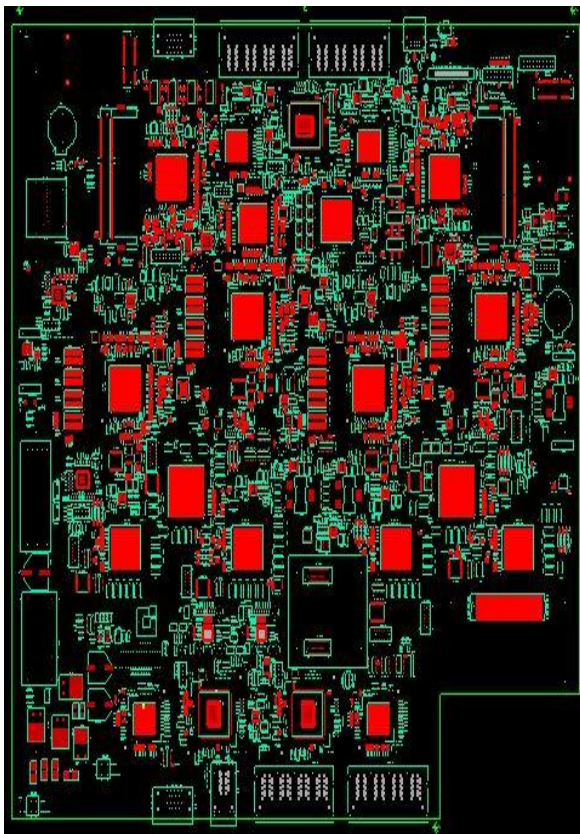




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GENERIC COMPUTING CARD

- Board Size : 437MM X 422MM
- No Of Components : 6326.
- Routing Connections : 23023.
- No Of Layers : 22
- DSP, DSC : TMX320C6678XCYP25
- Board Material : ISOLA FR408HR
- UART Interface – I2 C Interface – 16 GPIO Pins – SPI Interface – Semaphore Module – Sixteen 64-Bit Timers
- PCIe Gen2
 - › Single Port Supporting 1 or 2 Lanes
 - › Supports Up To 5 Gaud Per Lane.
 - ›Gigabit Ethernet (GbE) Switch Subsystem
 - › Two SGMII Ports › Supports 10/100/1000 Mbps Operation – 64-Bit
- DDR3 Interface (DDR3-1600)
 - › 8G Byte Addressable Memory Space

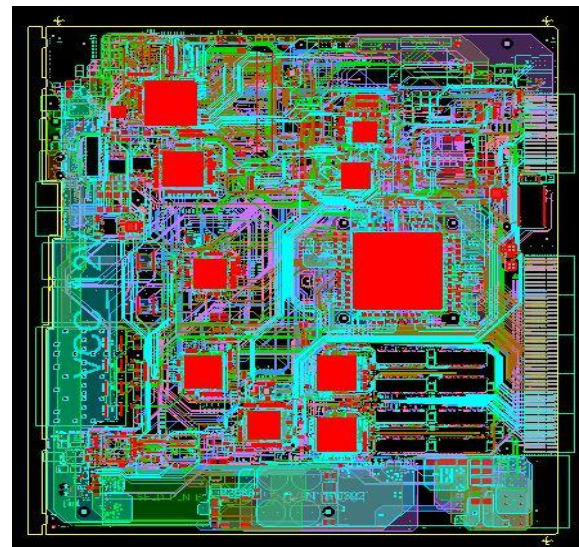
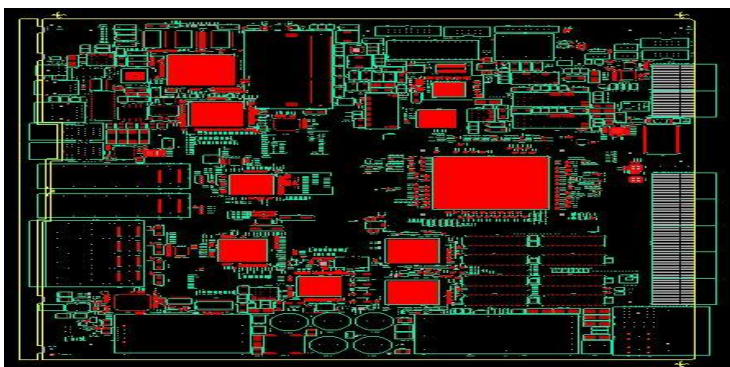




Glorious Circuit Technologies

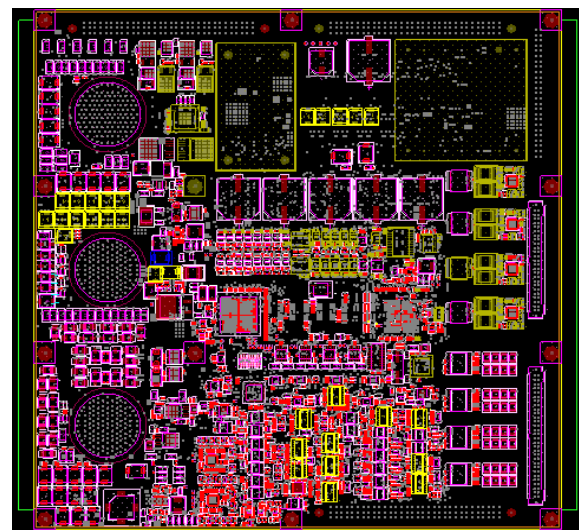
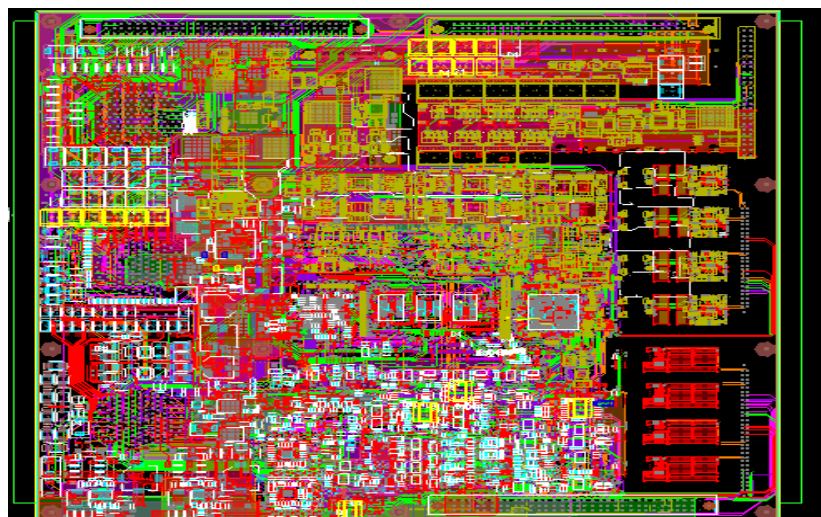
100G COHERENT OPTICAL MODULE

- Board Size : 290MM X 322MM
- No Of Components : 4148.
- Routing Connections : 13813.
- No Of Layers : 22
- FPGA CYCLONE IV GX, FBGA-672B (CLB:6K, LE:109K, VIN 1.16-1.24V, 3.125 GBPS, I/O:393, COM)
- Board Material : FR4



GATE DRIVE POWER SUPPLY PCB

- Board Size : 246MM X 250MM
- No Of Components : 3927.
- Routing Connections : 8750.
- No Of Layers : 12
- CONTROLLER XGA : SID3513B01B100-256N
- Board Material : FR4-EPOXY CLASS



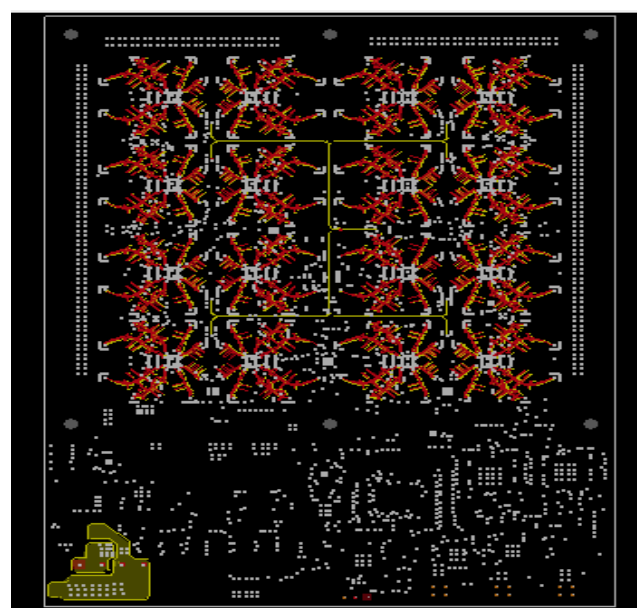
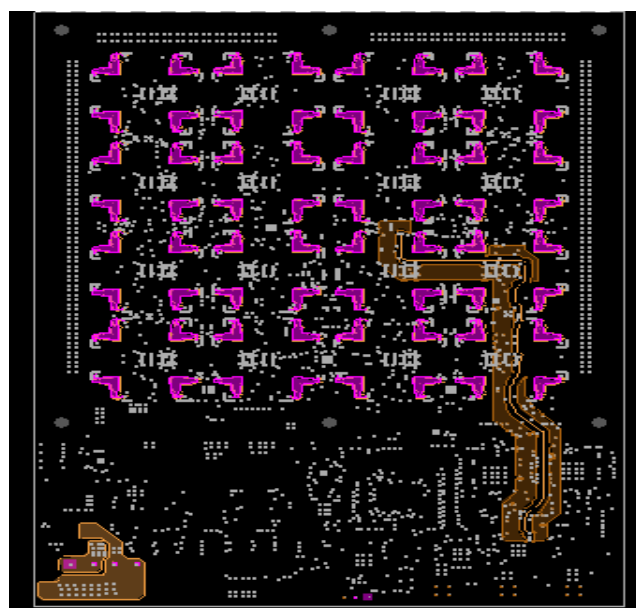
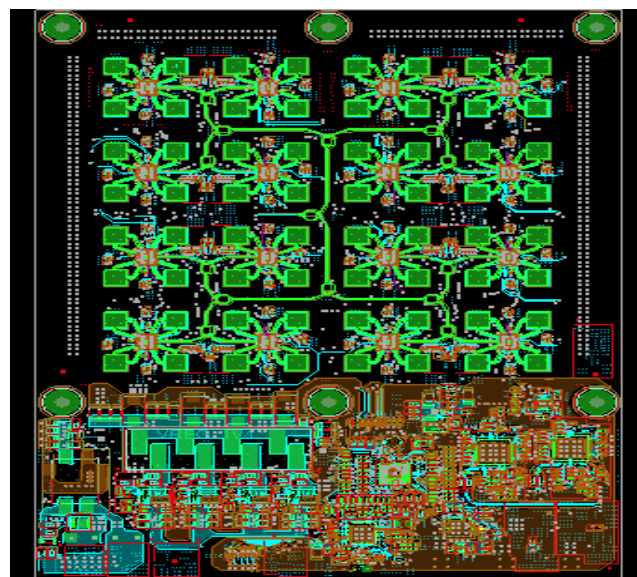


Glorious Circuit Technologies

GS6400A000000-CARD

- Board Size : 114MM X 158 MM
- No Of Components : 1150
- No Of Layers : 18
- Board Material : ISOLA ITERA -MT40
- Antenna TX -LINE INPUT Frequency range : 10-12GHz
- Antenna Rx-LINE OUTPUT Frequency range : 1-2 GHZ
- SPI SIGNALS Frequency range : 200MHZ
- Antenna Array & Antenna lcs Placement : 4x4

Latyer	Name	Dielectric	Thickness
Layer 1	Tx Antenna & TX PD	Isola Itera Mt-40	4mils
Layer 2	TX PD GND	Isola Itera Mt-41	4mils
Layer 3	TX/RX Demux/SPI Lines	Isola Itera Mt-42	4mils
Layer 4	TX/RX Demux/SPI Lines	Isola Itera Mt-43	4mils
Layer 5	1V2	Isola Itera Mt-44	4mils
Layer 6	Slot GND	Isola Itera Mt-45	4mils
Layer 7	TX L Band	Isola Itera Mt-46	4mils
Layer 8	GND	Isola Itera Mt-47	4mils
Layer 9	TX/RX Demux/SPI Lines	Isola Itera Mt-48	4mils
Layer 10	3V8 , 5V5	Isola Itera Mt-49	4mils
Layer 11	1V4	Isola Itera Mt-50	4mils
Layer 12	GND	Isola Itera Mt-51	4mils
Layer 13	RX Patch RX L Band	Isola Itera Mt-52	4mils
Layer 14	RX GND	Isola Itera Mt-53	4mils
Layer 15	LPF , RX PD	Isola Itera Mt-54	4mils
Layer 16	LPF GND	Isola Itera Mt-55	4mils
Layer 17	RX PD GND/ Signal	Isola Itera Mt-56	4mils
Layer 18	Signal	Isola Itera Mt-57	4mils

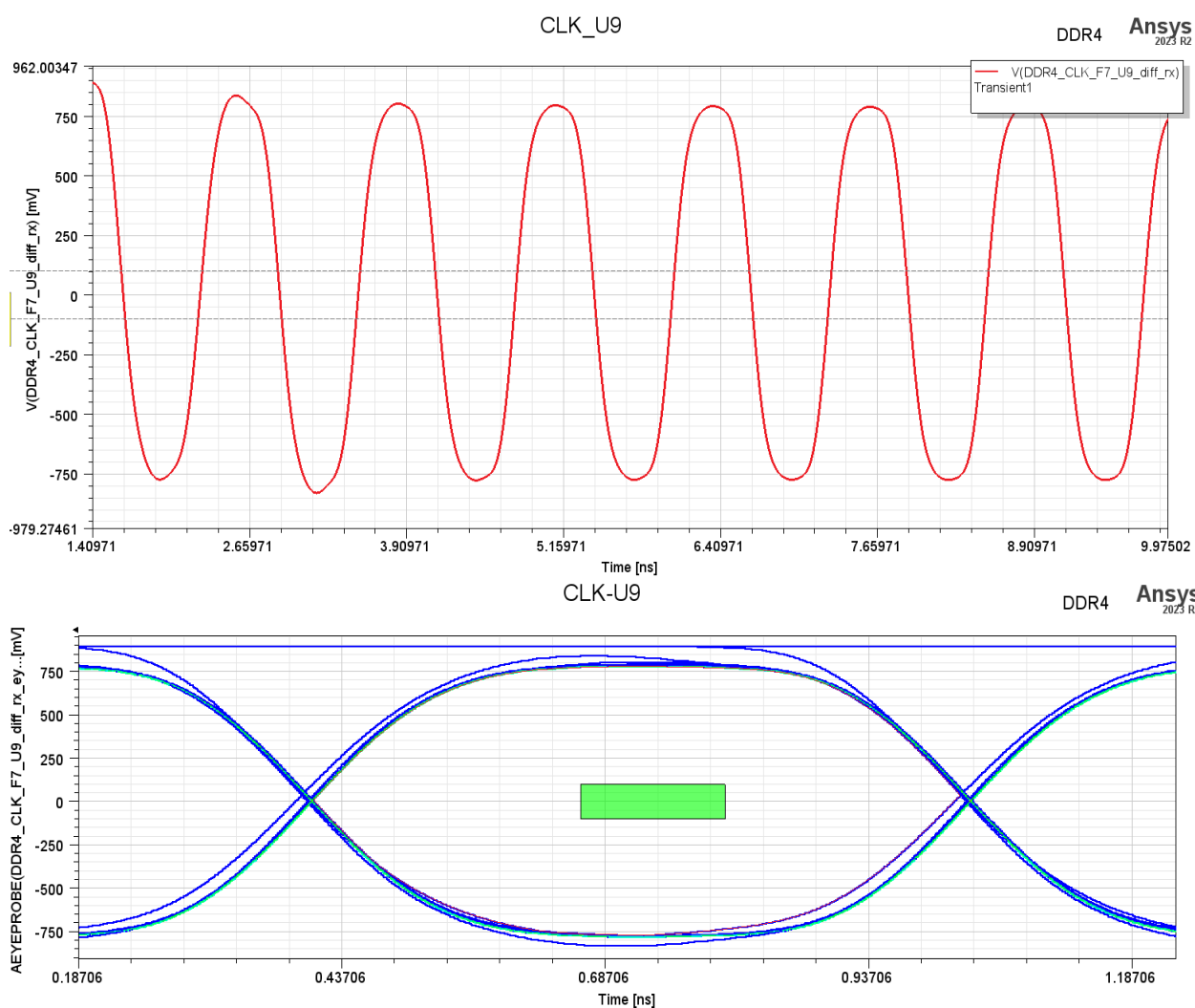




SI Analysis Case study

DDR4 SI Simulation

DDR_CLK_P/N waveform and eye diagram at receiver U9.F7&F8



NET NAME	EYE HEIGHT [V]	EYE WIDTH [ps]	RISE TIME [ps]	FALL TIME [ps]	TOTAL EYE JITTER [ps]	RESULT
DDR_CLKA_P&N_U9	1.38	0.23	0.17	0.17	0.04	PASS

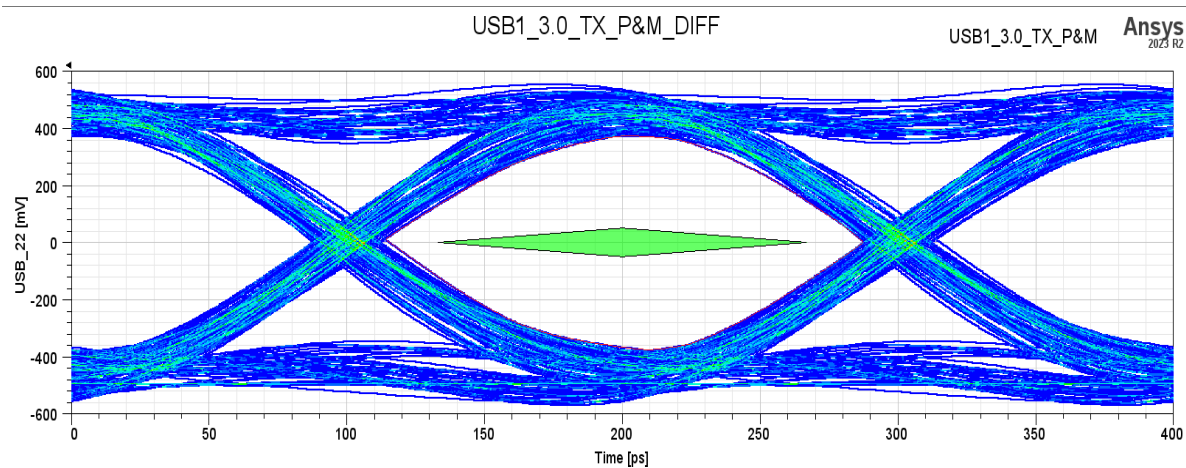
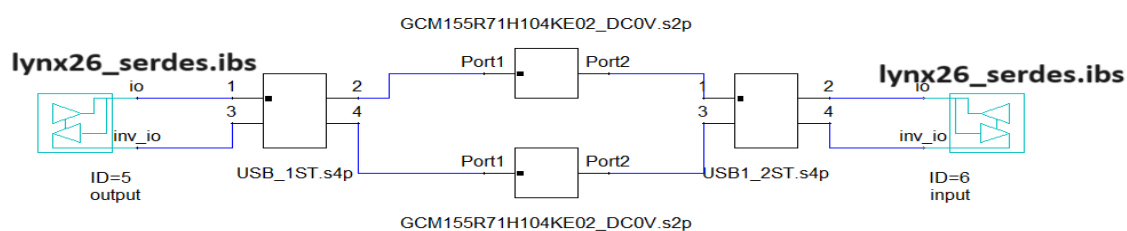


SI Analysis Case study

USB 3.0 SI Simulation

DRIVER: lynx26_usb3ss_tx

RECEIVER: lynx26_usb3ss_rx



NET NAME	EYE HEIGHT [V]	EYE WIDTH [ps]	RISE TIME [ps]	FALL TIME [ps]	TOTAL EYE JITTER [ps]	RESULT
USB1_3.0_TX_P&M	0.712	173.17	78.02	75.62	26.61	PASS



PI Analysis Case study

DCIR Drop Analysis for V12P0_SW

Impedance considered for series component: L45: 0.006ohm, L42:0.006ohms

Power Net	Voltage Level (V)	Source (Ref.Pin)	% of Max Voltage Drop Plot:	Total Current(A)
V12P0_SW	12	U35	5(600mV)	3.6



SPEC: 5% of 12 = 0.6V, Max Volt Drop of 0.019V Observed.

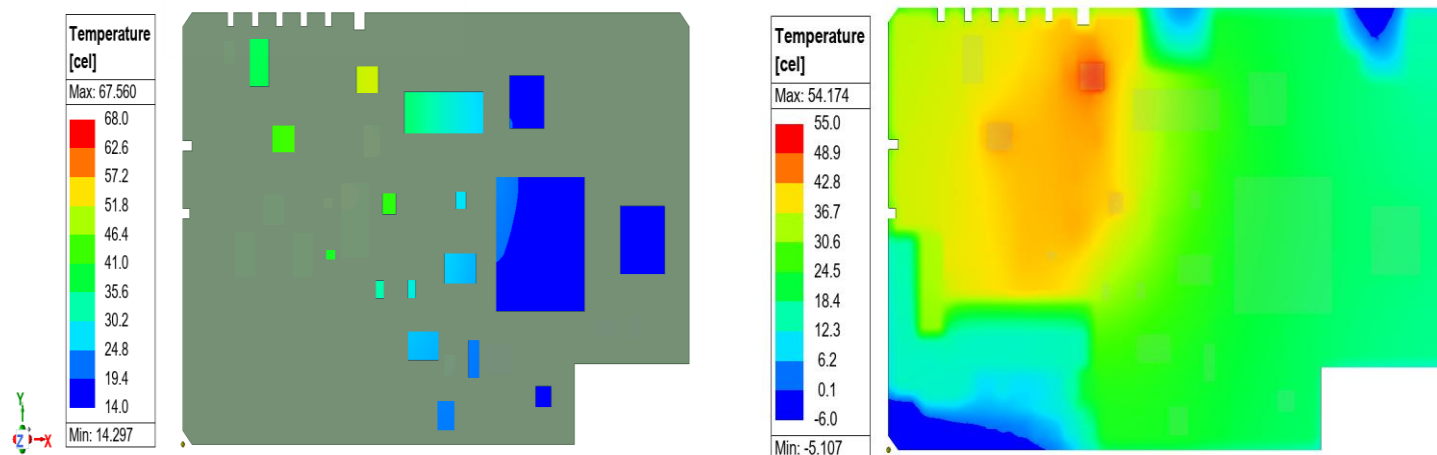
Result: 0.019V (PASS)



PCB Thermal Analysis Case Study

PCB Board- TCU_MCU

Component and Board temperature @ -20 °C Ambient



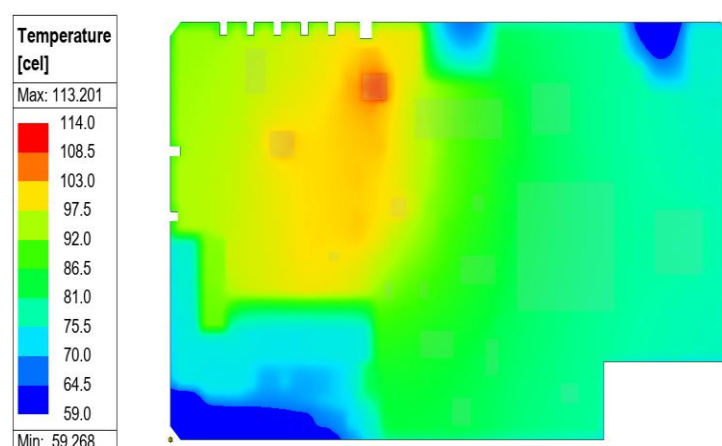
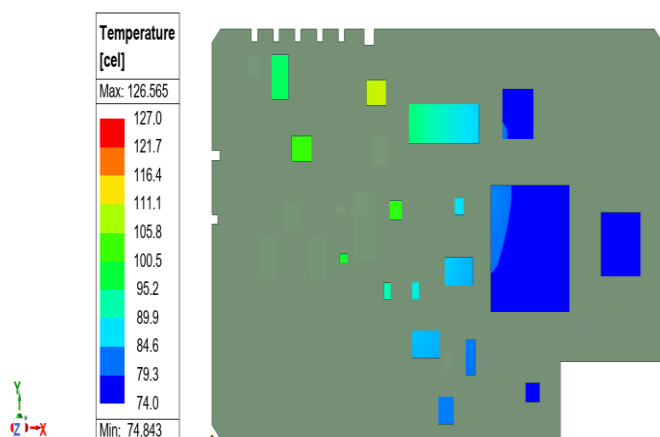
S.NO	REFDES	PART NUMBER	MAX POWER DISSIPATION(W)	MAX OPERATING TEMPERATURE (°C)	MAX JUNCTION TEMPERATURE IN SIMULATION (°C)	RESULT
1	U503	LM61480Q5RPHRQ1	0.89	150°C	48.86	PASS
2	U526	LMQ66420MA3RXBRQ1	0.26	150°C	39.95	PASS
3	U511	TPS61088QRHLRQ1	1.06	125°C	48.65	PASS
4	U64	BQ24105IRHLRQ1	0.45	125°C	41.51	PASS
5	U20	MFS2613AMBAA0AD	0.25	150°C	15.81	PASS
6	D177	V6PWM60HM3/I	1.2	175°C	45.47	PASS
7	Q2	TQM050NB06CR RLG	0.26	175°C	40.44	PASS
8	Q3	TQM050NB06CR RLG	0.26	175°C	36.64	PASS
9	Q101	TQM050NB06CR RLG	0.75	175°C	67.55	PASS
10	U18	S32K322NHT0MPBST	0.07	150°C	21.01	PASS



PCB Thermal Analysis Case Study

PCB Board- TCU_MCU

Component and Board temperature @ 50 °C Ambient

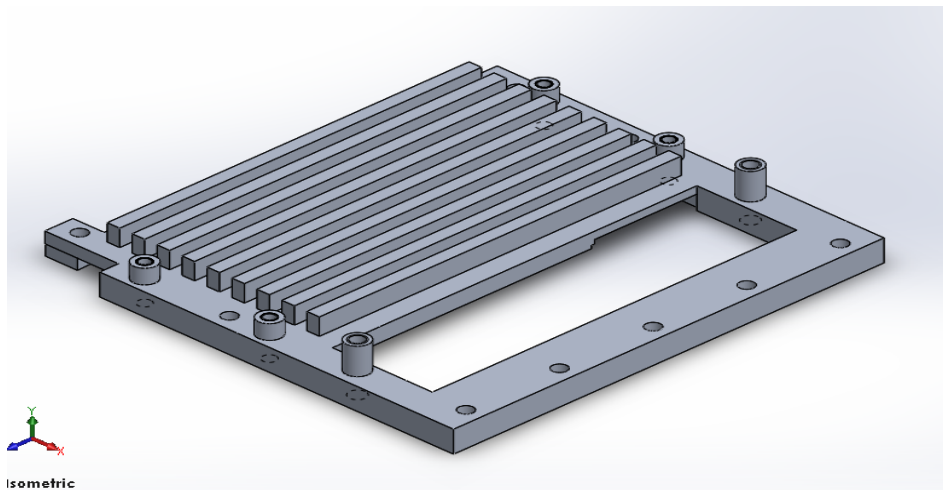
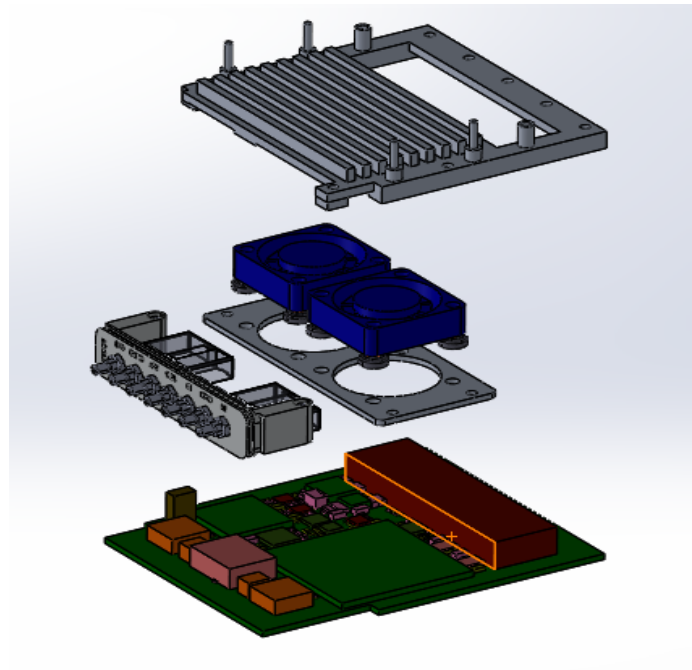
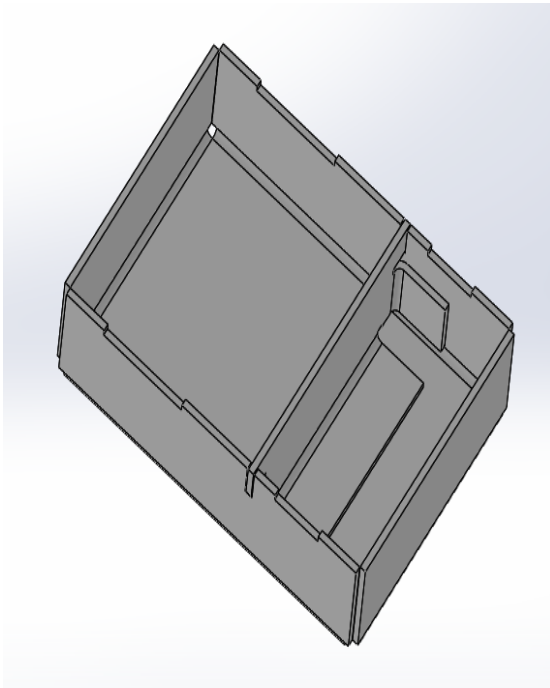


S.NO	REFDES	PART NUMBER	MAX POWER DISSIPATION(W)	MAX OPERATING TEMPERATURE (°C)	MAX JUNCTION TEMPERATURE IN SIMULATION (°C)	RESULT
1	U503	LM61480Q5RPHRQ1	0.89	150°C	107.85	PASS
2	U526	LMQ66420MA3RXBRQ1	0.26	150°C	99.31	PASS
3	U511	TPS61088QRHLRQ1	1.06	125°C	107.76	PASS
4	U64	BQ24105IRHLRQ1	0.45	125°C	100.41	PASS
5	U20	MFS2613AMBA0AD	0.25	150°C	76.20	PASS
6	D177	V6PWM60HM3/I	1.2	175°C	104.59	PASS
7	Q2	TQM050NB06CR RLG	0.26	175°C	99.49	PASS
8	Q3	TQM050NB06CR RLG	0.26	175°C	95.71	PASS
9	Q101	TQM050NB06CR RLG	0.75	175°C	126.56	PASS
10	U18	S32K322NHTOMPBST	0.07	150°C	80.85	PASS



Mechanical Case study

Enclosure Design for Telecom Products- Heat Sink design



Glorious Circuit Technologies

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