

# OPTICAL COMMUNICATION DON'T MISS THE **25 GBPS**

EMBEDDED TECH TRENDS **2020**  
**PATRICK MECHIN**



STATE – OF – ART  
12 GBPS



**ARINC 818**

# 12 GBPS - VITA COMPLIANT

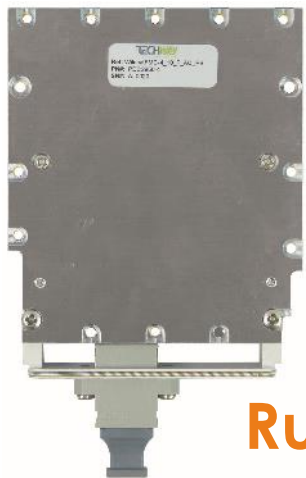
→ **VITA 57.4** (FMC+)

→ **VITA 66.X** (VPX)

→ **VITA 47** (Environmental)

→ **Air Cooled** (EAC5 / EAC6)

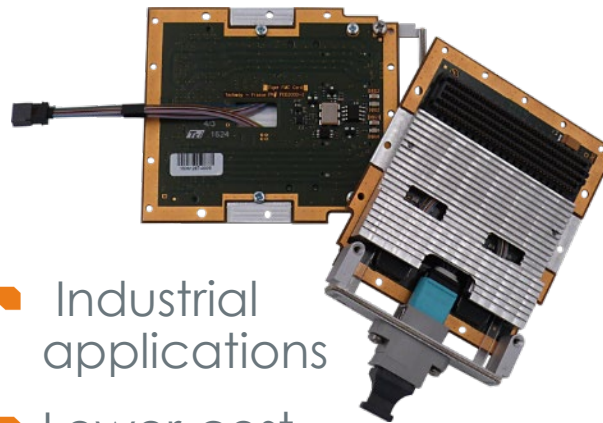
→ **Conduction Cooled** (ECC4)



- Robustness
- Low-profile
- High-density

**Rugged range**

## Industrial range



- Industrial applications
- Lower-cost



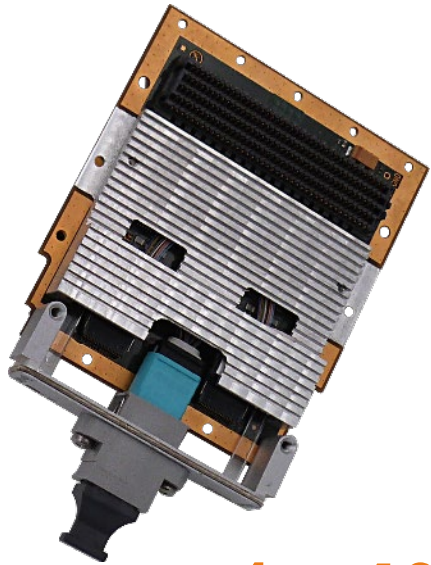
- VITA 66.1

**Unique rear I/O option**



# 12 GBPS - FIELD-PROVEN OFFER

## Wide product range @ 12 Gbps



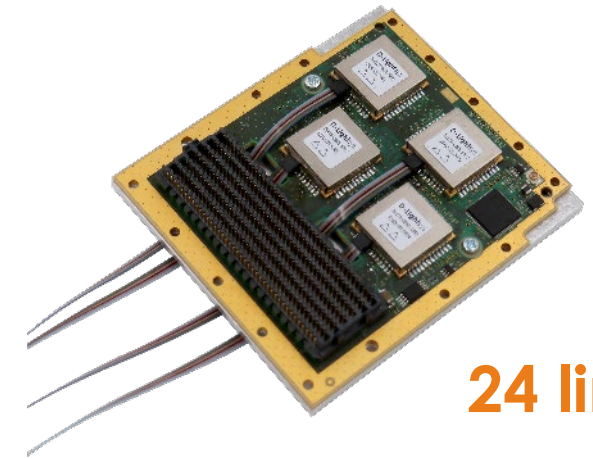
- VITA 57.1
- 10 Gbps

**4 or 10 links**

**12 links**



- VITA 57.4
- 12 Gbps



**24 links**

- VITA 57.4
- 12 Gbps

The background features a light gray grid of thin, curved lines that create a sense of depth and perspective. A large, white, trapezoidal shape is positioned in the center, serving as a backdrop for the text.

WHAT'S THE NEXT ?  
25 GBPS

# MARKET TRENDS



## ■ HPC

- Higher and higher bandwidth
- Need for 100 GbE capabilities
  - 4 links @ 25 Gbps

## ■ RADAR / EW

- Compliance with the next generation of sensors
- Phase-array RADAR
  - 4 links @ 25 Gbps
    - 1 link : 25 Gbps → 3,125 GB/s
    - 4 links : 12,5 GB/s Bandwidth

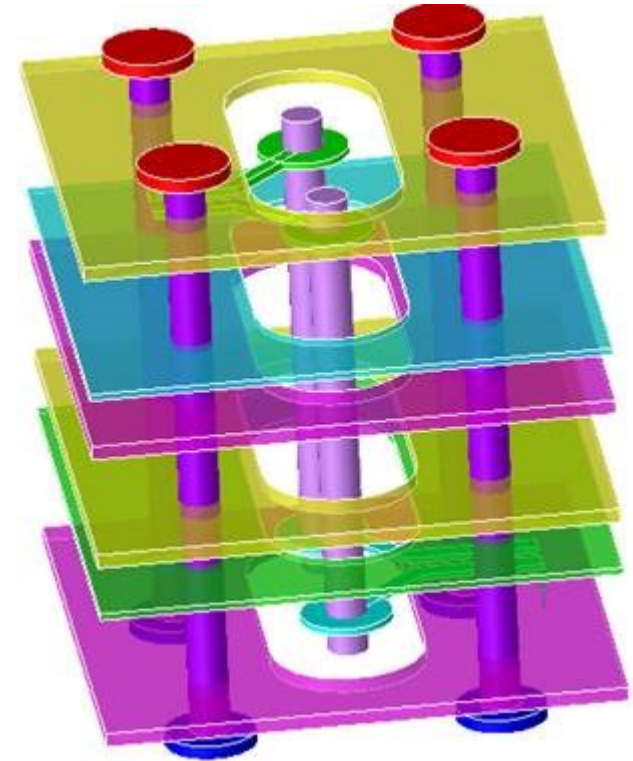


The background features a complex, abstract pattern of thin, light-colored lines that create a sense of depth and movement, resembling a perspective view of a grid or a network. A large, white, trapezoidal shape is positioned in the center, serving as a backdrop for the text.

25 GBPS  
MAJOR CHALLENGES

# 25 GBPS CHALLENGES : PCB DESIGN

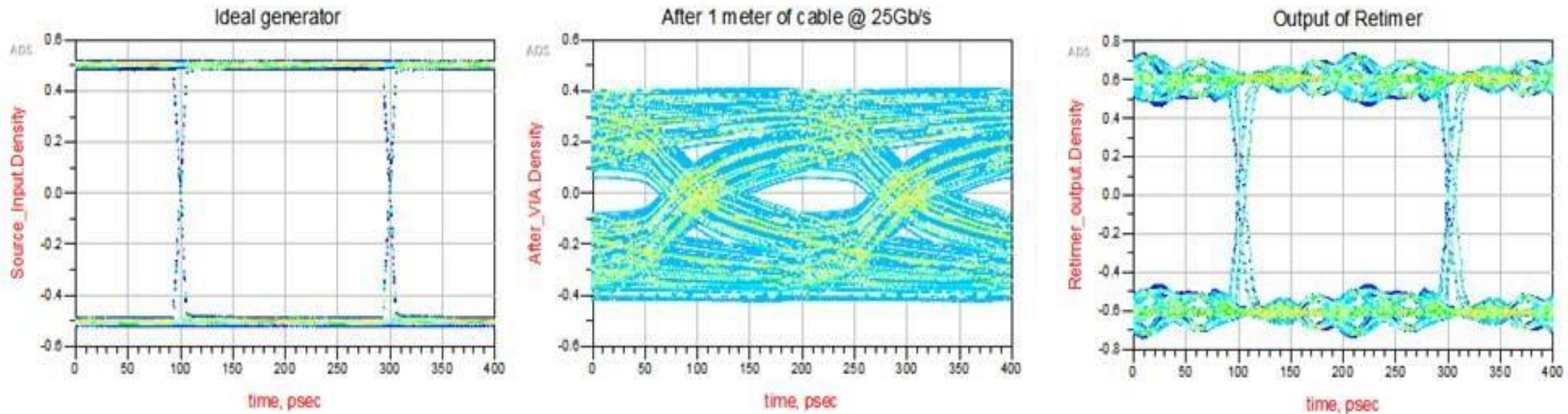
- 3D design
- HDI (High-density interconnect)
  - Stacked laser vias
  - Blinded vias
  - Buried vias
- Very low DK PCB material





# 25 GBPS CHALLENGES : RETIMER

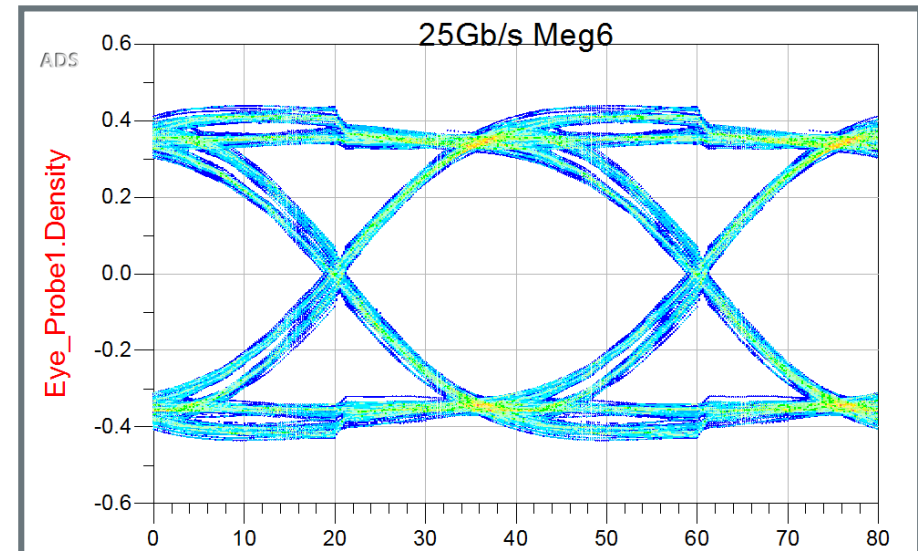
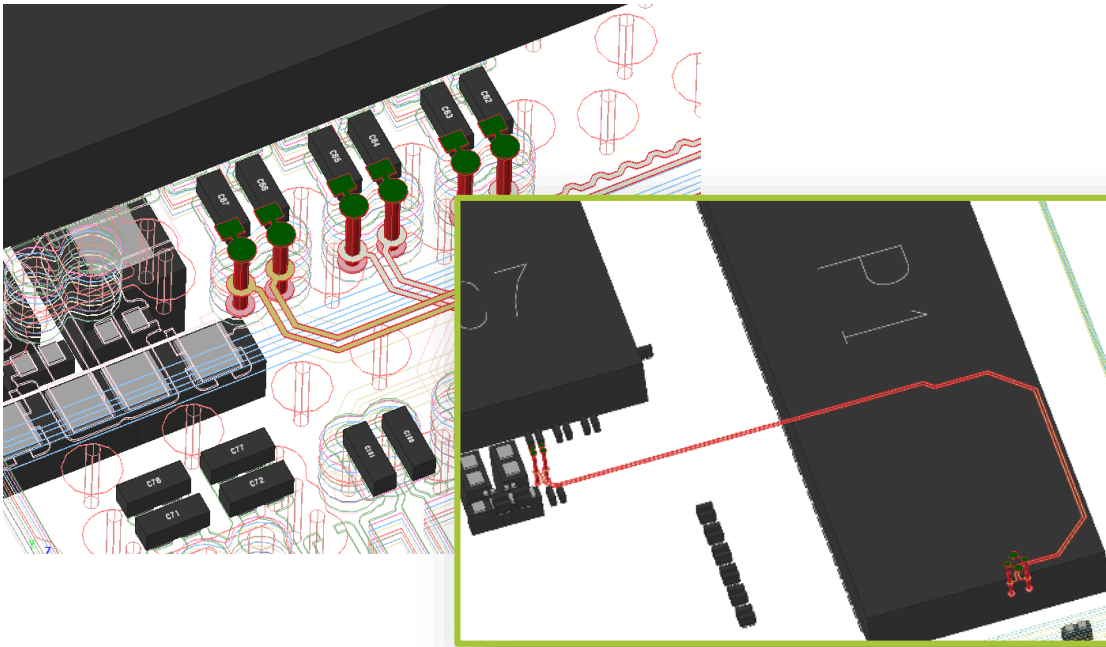
- **Mandatory** : Retimer (or Repeater)



- Thermal vs density
- Consumption → x2 vs optical component

# 25 GBPS CHALLENGES : SIMULATION

- Well-know guideline → out-of-date
- Mandatory:** 3D Electromagnetic simulator



# 25 GBPS FMC - ROADMAP

Total bandwidth  
(Gbps)

600

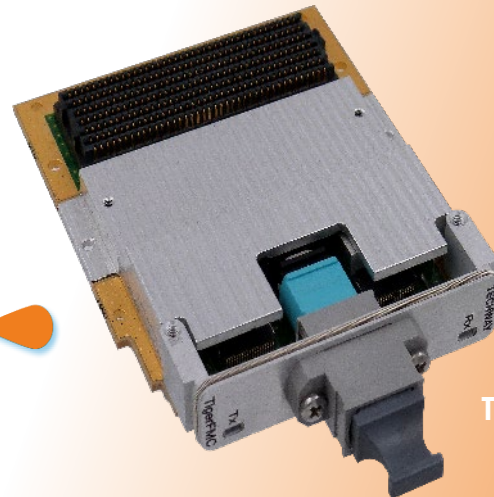
Q2 2021



WildcatFMC – 12 links

200

Now



TigerFMC – 4 links

25 Gpbs  
Link speed

Thanks for your attention

Any questions ?



Patrick MECHIN  
CEO

[info@techway.fr](mailto:info@techway.fr)

[www.techway.fr](http://www.techway.fr)