

Signal Integrity Analysis

Signal Integrity is the study dealing with the impact of interconnect's electrical properties on system performance. The type of problems can be classified into three categories:

- Reduction of signal quality on a point to point interconnection link (e.g. reflections, attenuation)
- Interaction between signals (e.g. crosstalk)
- Radiation of or susceptibility to EMI

Signal Integrity becomes an issue of consideration when the system has:

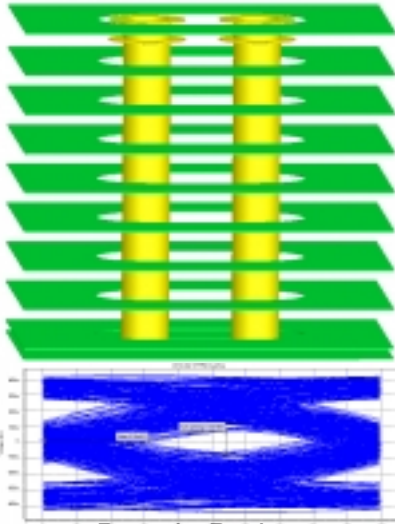
- High speed signals over long distances
- High density connectors
- Multidrop topologies

PCB material, IC technology, connector pin assignment, layout constraints etc have to be defined.

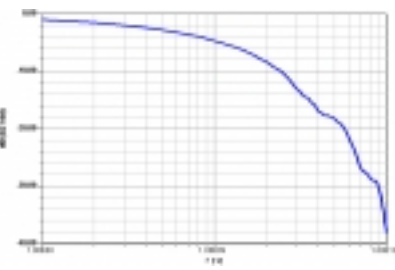
And in any other case there is a doubt!

Comtel has the right tools, over 30 years of man experience in field of signal integrity and most uptodate expertise to approach signal integrity issues. Our Signal Integrity engineering team works closely with Backplane Design team to provide the optimal layout constraints, routing suggestions, stack-ups, materials trade-offs at high speed interconnects, backdrilling necessity and assure high quality of Comtel products.

Tools that we use



(by using QSPICE, Cadence, HyperLynx, Synopsys, etc.)

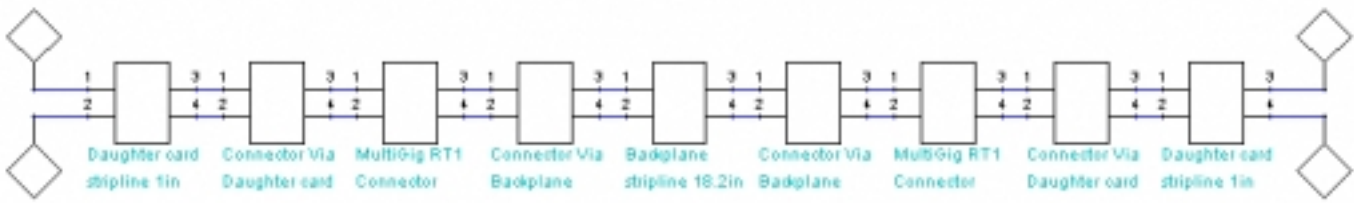


Examples of our capabilities

On request we can provide sample reports of the following simulations to provide an impression of our capabilities:

- 10 Gbps characterization of Comtel 16slot AdvancedTCA Backplane in time and frequency domain using S-parameters
- Characterization of a high-speed Backplane with FR4 and IS620, with and without backdrilling in frequency domain
- Induced noise by power lines on the data lines for Telecomms 48V Backplane
- Optimization of a GTL bus at 20MHz
- PCB Via structure optimization using Time Domain Reflectometry
- TwinAx 70cm cable link performance at 1.25Gbps connecting two Backplanes

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Signal Integrity Publications

Please make sure to download our recent publications in the field of Signal Integrity, available for registered members:

- Via capacitance calculation using Surface Charge Method
- Via inductance calculation using Vector Potential
- PRBS applications for interconnect simulations
- Backdrilling characterization for high-speed Backplanes
- Routing square or round corners at high frequency

[Read more: Testing](#)