Simplified Multi-Gigabit Networking
with Perfluorinated POF

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New POF Material, New POF Design

- Extruded Perfluorinated polymers
- Low attenuation, infrared-transparent

![POF Material Diagram]

<table>
<thead>
<tr>
<th>Wavelength (nm)</th>
<th>Attenuation (dB/km)</th>
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</thead>
<tbody>
<tr>
<td>850</td>
<td>~40 dB/km</td>
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<tr>
<td>900</td>
<td>~40 dB/km</td>
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<tr>
<td>1100</td>
<td>~40 dB/km</td>
</tr>
<tr>
<td>1300</td>
<td>~40 dB/km</td>
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</tbody>
</table>

~40 dB/km across 850-1300 nm
Tight Geometry Control

- Graded-index core sizes 50-120 μm
- Overclad: 750 5 μm
- Core-OD eccentricity < 5 μm

Very simple handling even with small core sizes
Connectorless termination – the fiber is the ferrule
Gigabit Performance

• Typical overfilled BW > 750 MHz-km
• Demonstrations -
  10 Gb/s x 220 m transmission, 40 Gb/s x 100 m transmission

100 Meter GigaPOF: 10Gbps Eye-Pattern

• Mode Coupling simplifies launch conditions and improves skew
  “Just get the light in the fiber”
GigaPOF: Just get the light in the fiber

placement tolerance

100 meters: Mode Coupling vs DMD

glass fiber 50µm core

placement tolerance
Ductile GigaPOF® does not exhibit fatigue like silica fibers.

Optical fibers do not have bend induced cross-talk at high speeds like copper.

GigaPOF® to 5mm long term
Field-Installable Applications:

Enterprise LAN
Industrial Networking
Crimp-on LC Connector for Field Termination

- Instant crimp-on connectors, no adhesives
- 30 second polishing >>>> 1 second cutting of the end face
- 1 minute start to finish
- Safe……No Glass Shards!
GigaPOF® to glass seamless transition
Active Optical Cables

Ethernet
HDMI / DisplayPort
Automatic Termination

- Diamond blade cutting
- Bare fiber or connectorized
- <10 sec cycle time
- Smooth, clean, endface
- 0.2 dB fiber-fiber loss
- Suitable for factory, enterprise
- Multifiber capability
Connector free developments

Cable clamp
Fiber overclad as ferrule
Injection molded mount
Cable jacket
Fiber core/end cut
Finisar Laserwire Active Cables
Various HDMI Active cables
Next-Generation Optical Packages

Assembled w. Semiconductor Packaging Methods

Integrate drivers, amplifiers, etc

Very low cost, very small, very low power
perfluorinated
OPTICAL FIBER

FASTER
than wire

FARThER
than plastic

SAFER
than glass

SIMPLER
than all

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