

細径光ファイバを用いた高密度光バックプレーンの開発

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High-Density Optical Backplane Using Small Diameter Optical Fiber

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Abstract

Rapidly increasing broadband access has led to the requirement for much higher transmission throughput within a network equipment. The most promising solution is optical interconnection using an optical backplane. We have developed a high-density optical backplane using a small-diameter optical fiber to realize multi-tera bit/s throughput. To achieve this, we developed a new high-delta and small-diameter optical fiber (clad diameter=80 μm , coating diameter=125 μm), a high-density optical fiberboard with small bending radius ($r=5\text{mm}$), a high-density MT ferrule, an easy assemble MT ferrule and compact optical right angle connector. Using these new devices, we fabricated a high-density optical backplane, which complies with the structure of an ATCA backplane. It has achieved a high throughput performance of 3Tbit/s, which is five times that of an electric backplane.

Key Words: *Optical Backplane, Small Diameter Multimode Optical Fiber, Optical Fiber Board, Optical Right Angle Connector, ATCA*