FACTSHEET
NETWORKING ASSP SOLUTIONS

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FUJITSU

THE POSSIBILITIES ARE INFINITE

Networking **ASSP SOLUTIONS:** end-to-end, reliable and service aware networks for Triple Play

The reference board featuring Fujitsu's MB87M2181 and Switchcore CXE2139 devices: a compact solution for service aware Ethernet over SDH/SONET applications.

Description

Today's and next generation telecom networks have to combine the flexibilty of packet-based technologies with highly reliable transport systems. The Ethernet-based packet systems can provide service aware networks that allow different priorities for different traffic types. The reliable transport of the data is ensured by TDM-based carrier-class networks according to PDH, SDH/SONET and OTN standards.

Therefore, Fujitsu Microelectronics Europe (FME), together with partners, enhances its networking solutions portfolio, focusing on providing complete, verified and interoperable system solutions for next generation access, aggregation and metropolitan core network applications.

To provide first class silicon, software and support, FME established long-term strategic partnerships with leading solutions providers for the telecom industry like Switchcore, developing Ethernet-based integrated network devices for data switching and AimValley, providing systems and services for telecommunication and data communication applications.

These partnerships, in combination with Fujitsu's outstanding position as a networking ASSP provider, enable FME customers to cover a wide range of applications utilising out-of-the-box solutions, starting with end-users equipment such as WiMAX™ CPEs up to metro and core network systems.

With this unique combination of carrier-class Ethernet switching, highly reliable SDH/SONET-based transport and interfacing technology and latest WiMAX compliant wireless, telecom systems providers can deliver content-aware quality of service over traditional backbone infrastructures.

MB87M2181 Ethernet over SDH/SONET

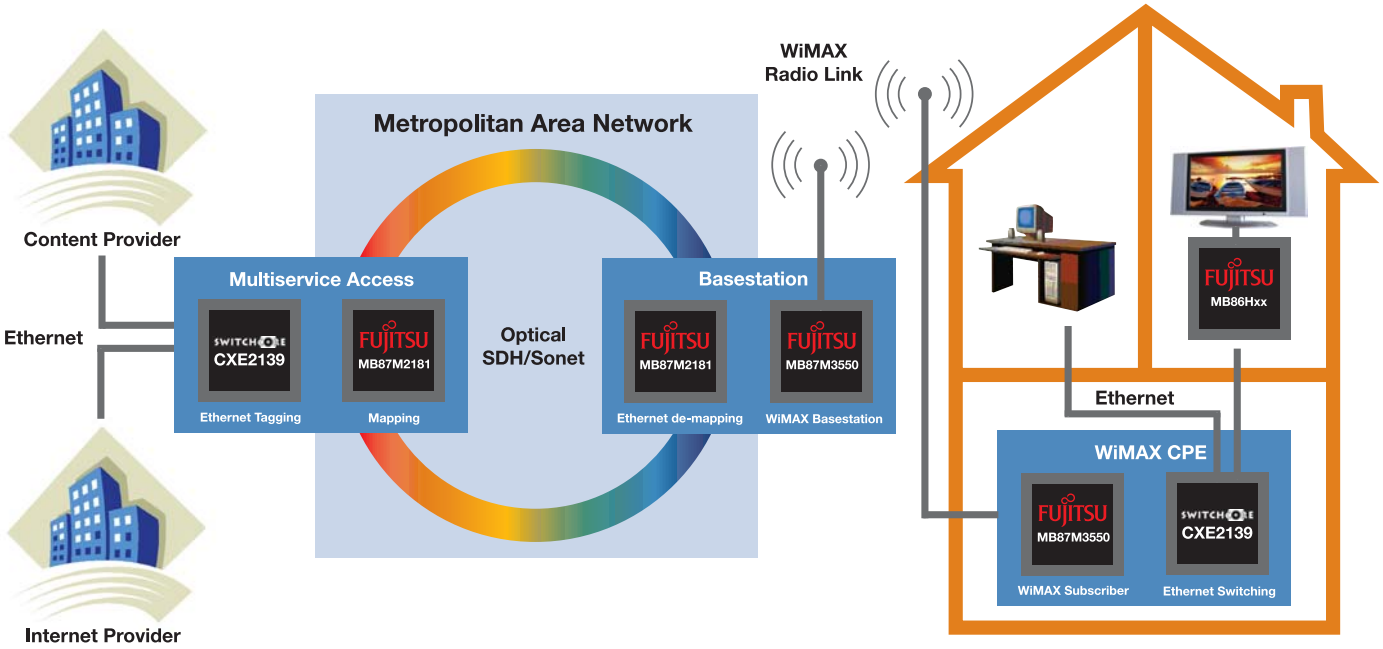
- System-on-chip for hybrid SDH/SONET and data applications
- Interfaces:
  - 4 x Multi-rate STM-1/OC-3, STM-4/OC-12
  - 4 x E1/DS1 and TC-bus
  - 4 x 10/100/1G Ethernet
- Synchronisation E1/DS1
- VC-4/STS1 and VC-12/VC-3/VT-1.5 cross-connects
- 4 virtual concatenation groups with LCAS and differential delay compensation
- GFP, LAPS and PPP mapping of Ethernet frames
- SDH/SONET/Ethernet performance monitoring and alarming
- Flow control, rate control
- Integrated timing functions, HDLC controller and CPU interface

MB87M3550 WiMAX 802.16-2004

- Certified interoperability
- High performance OFDM (256 FFT, 64 QAM) based transmission
- Metropolitan orientation, later improved mobility (16e)
- Compliance with IEEE 802.16-2004 standard specification
- One device to support SS and BS
- Data encryption in hardware
- LMAC provided as firmware
- Industry-standard processors:
  - ARM9 based for SS/CPE type of applications
  - External PowerPC for BS type of applications

MB86H22B SmartMPEG decoder

- MPEG2 video ISO/IEC 13818-2 (MP@ML...SP@ML)
- MPEG audio layer 1/2
- Universal processor interface (IDE, NAND/NOR flash & common interface)
- Two transport stream decoders (decoding/recording) including two DVB descramblers
- Flexible MPEG video resizing (factor 1/16 to 2)
- Display controller with up to 4 true colour graphic or CLUT layers (total 6 layers)
- Ambient temperature range: -40 to +85°C or 0 to +70°C
- Power consumption: typ. 700mW (Standby: 100mW)



Ethernet is playing a key role in assigning different priorities to networked content, as illustrated in this working system.

Switchcore XPEEDIUM2PRO CXE 2139 Ethernet switch router

- Powerful switching and routing extended for access applications
- Single-chip switch/router with integrated buffer memory and address tables
- 28Gigabit and Fast Ethernet ports
- Scalable up to 100's of GE ports
- 2048 Diffserv Meter/Markers
- Expandable buffer memory
- Expandable address tables
- Bandwidth management to support a large number of SLAs, as well as extensive per-subscriber statistics.
- Powerful packet filtering and classification.

Applications

The promise of triple play is finally becoming a reality, thanks to the offer of broadband access to residential customers.

These new services, like Video (IPTV), speech (Voice-over-IP) and data (e-mail, web browsing), have different requirements regarding bandwidth, reliability, latency and jitter and they need to be managed in the proper way to get the requested quality of service. An application example is shown above.

The Multiservice access equipment collects traffic from Internet and content providers at the edge of the highly reliable, optical fibre-based Metropolitan Area Network (MAN).

The different data streams are then tagged, classified and managed using Switchcore Xpeedium2pro switch, according to traffic profiles matching the service level agreements: real-time streams (e.g. video and voice) are guaranteed to be transmitted with minimum delays and packet losses, while the remaining bandwidth is assigned to the best-effort class of services (e.g. email and web browsing).

Data packets are mapped into the SDH/SONET transport protocol using Fujitsu MB87M2181 Ethernet over SDH/SONET device and access the fibre-based MAN. Therefore, packets travel across a highly reliable, connection-oriented optic ring with protection mechanisms and fast restoration.

From the fibre-based MAN, a further MB87M2181 drops the data stream to an MB87M3550 WiMAX chip, core-device for both base-station and customer premise applications, for transmission to the subscriber across a broadband wireless interface.

At the customer premises, another Xpeedium2pro switch distributes the different types of traffic to the end equipment (telephone, PC and set-top box).

The set-top box is equipped with the Fujitsu MB86H22B chip, providing MPEG-2 decoding for IPTV transmissions.

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