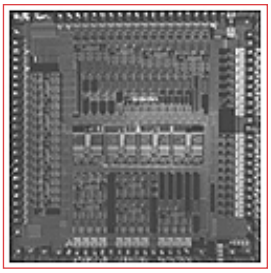
BCM5218

PRODUCT Brief



10/100BASE-TX/FX OCTAL-Φ™ TRANSCEIVER

BCM5218 FEATURES

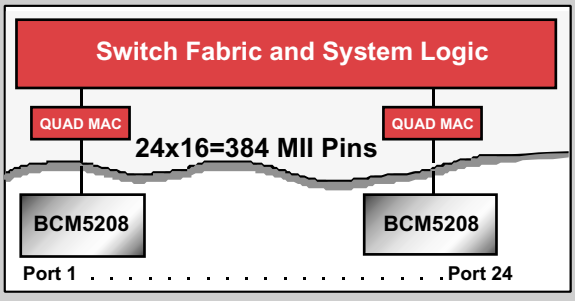
- Single-chip 8-port Fast Ethernet Transceiver
- Reduced Media Independent Interface (RMII) to Magnetics
- Serial Media Independent Interface (SMII)
- Fully-integrated Digital Adaptive Equalizers
- On-chip Multimode Transmit Waveshaping
- Edge-rate Control Eliminates External Filters
- Integrated Baseline Wander Correction
- Full-duplex Support
- Twisted-pair or Fiber Support on any or all Ports
- Shared MII Management Interface up to 12.5 Mbps
- LED Status Pins
- Interrupt Output Capability
- Loopback Mode for Diagnostics
- Low-power Single-supply 3.3V CMOS Technology
- Compatible with 3.3V I/O and 5.0V I/O
- 256-pin TBGA

SUMMARY OF BENEFITS

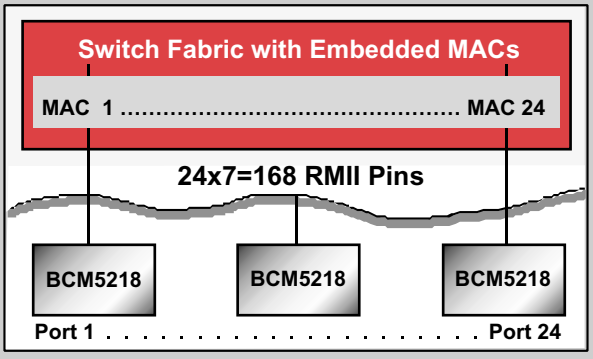
- Target usage: Fast Ethernet switches
- Provides robust performance over a broad range of operating conditions
- Single-chip device contains 8 independent Fast Ethernet transceivers
- Performs all physical layer interface functions for 100BASE-TX full-duplex or half-duplex Ethernet on CAT 5 twisted-pair cable and 10BASE-T full or half-duplex Ethernet on CAT 3, 4 or 5 cable
- Will permit transmission over fiber-optic cabling when paired with an external fiber-optic transceiver
- Compliant with IEEE 802.3 and 802.3u standards
- IEEE 1149.1 (JTAG) and NAND-Chain ICT support
- Separate RMII or SMII clock domains for each of 2 sets of 4 ports, for easy connection to either quad or octal MAC chips

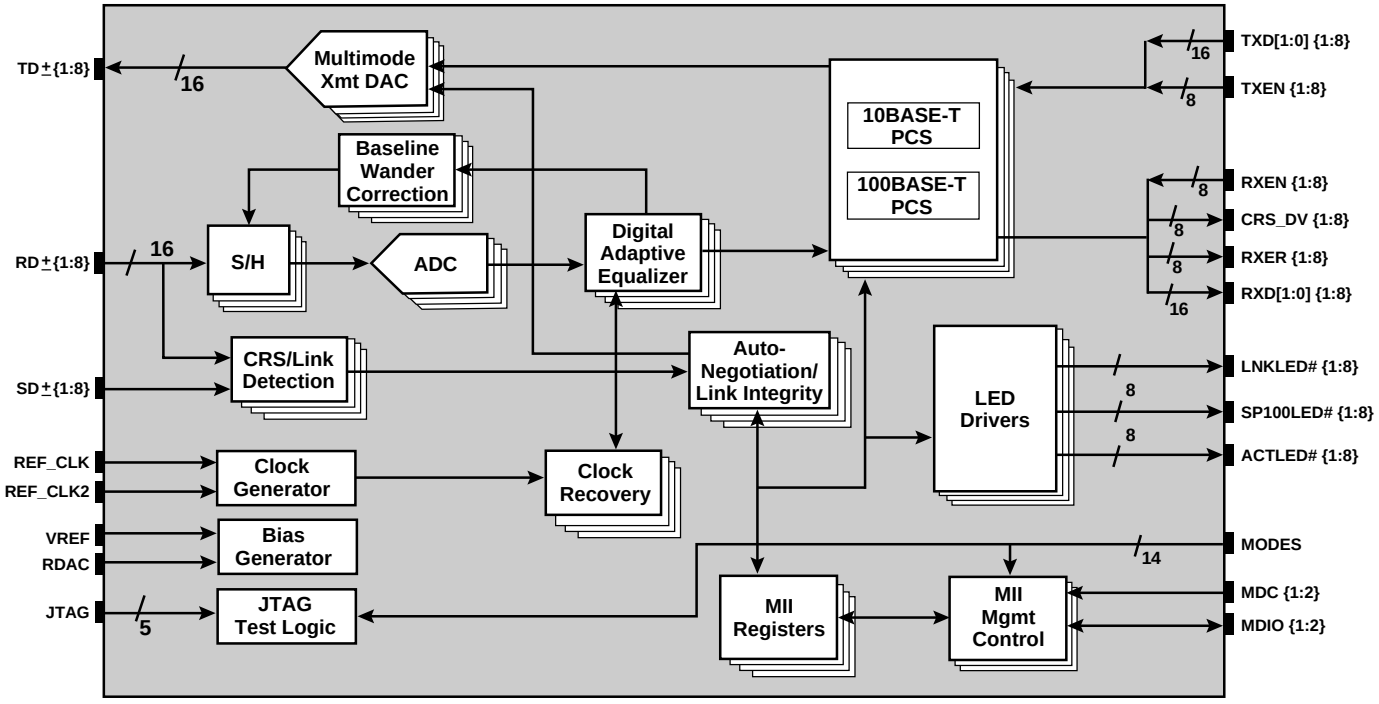
Quad BCM5208 Versus OCTAL BCM5218 Comparison for 24-Port Switch Design

1997: 6 Active PHY Components + 6 MACs including Switch Fabric



1999: 3 Active RMII PHY Components + RMII MACs embedded in Switch Chip





The Broadcom® **BCM5218** is a single-chip device containing eight independent Fast Ethernet transceivers. Each performs all the physical layer interface functions for 100BASE-TX full-duplex or half-duplex Ethernet on Category 5 twisted-pair cable and 10BASE-T full or half-duplex Ethernet on Category 3, 4 or 5 cable. Each port may also be configured for 100BASE-FX full or half-duplex transmission over fiber-optic cabling when paired with an external fiber-optic line transceiver.

The **BCM5218** chip performs 4B5B, MLT3, NRZI, and Manchester encoding and decoding, clock and data recovery, stream cipher scrambling/descrambling, digital adaptive equalization, line transmission, carrier sense and link integrity monitoring, Auto-Negotiation and RMII management functions. The **BCM5218** is compliant with the IEEE 802.3 and 802.3u standards.

The **BCM5218** may be connected to a MAC through the RMII on one side and connects directly to the network media on the other side through isolation transformers for UTP modes or fiber-optic transceiver components for FX modes. Two clock domains allow each set of four ports to be connected independently to separate quad RMII/SMII MAC chips. Alternatively, the clocks can be driven from a single source for connection to an octal RMII/SMII MAC.

The **BCM5218** is available in a 256 Tape Ball Grid Array package (TBGA) for high manufacturing yield during printed circuit board assembly. 100% production testing of each device over voltage and elevated temperature insures excellent quality and conformance to specifications. Support for JTAG and NAND-Chain allows In-Circuit Testing to further reduce total manufacturing costs during PCB assembly.

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