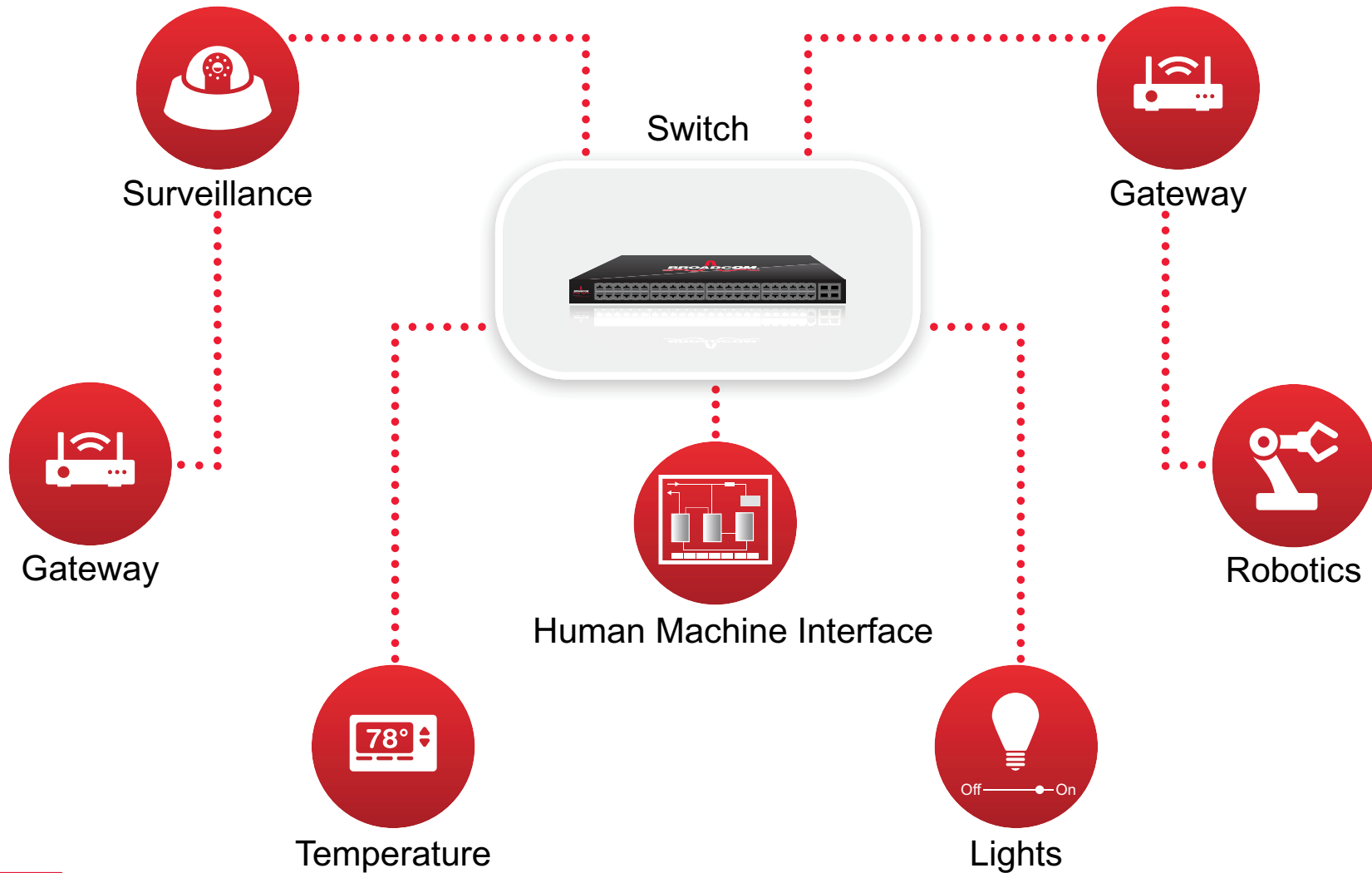


2016 PRODUCT SELECTOR GUIDE  
**MASS MARKET PRODUCTS**



# ETHERNET PHY AND SWITCH: INDUSTRIAL APPLICATIONS



# MASS MARKET PLATFORM PHY SOLUTIONS

| Devices   | Media Interface |              |             | MAC Interface |        |       |       |     |      | Features    |                                 |             |           |        |                    |                |             |              |                       |                          |
|-----------|-----------------|--------------|-------------|---------------|--------|-------|-------|-----|------|-------------|---------------------------------|-------------|-----------|--------|--------------------|----------------|-------------|--------------|-----------------------|--------------------------|
|           | Port Speed      | Copper Ports | Fiber Ports | GMII          | QSGMII | SGMII | RGMII | MII | RMII | AutogreEEEn | Energy Efficient Ethernet (EEE) | IEEE 1588v2 | Y.1731 DM | I-Temp | LED Pins and Ports | Synch Ethernet | Power Rails | Process      | Package Size (mm)     | Package Type             |
| BCM5221   | FE              | 1            | 1           |               |        |       |       | 1   | 1    |             |                                 |             |           | ✓      | 4                  |                | 2.5V/3.3V   | 220 nm       | 12 x 12, 8 x 8, 7 x 7 | 64 LQFP, 64 FBGA, 48 QFN |
| BCM5241   | FE              | 1            |             |               |        |       |       | 1   |      |             |                                 |             |           | ✓      | 2                  |                | 2.5V/3.3V   | 180 nm       | 5 x 5                 | 32 MLP                   |
| BCM5461   | GE/FE           | 1            |             | 1             |        |       | 1     |     |      |             |                                 |             |           | ✓      | 8                  |                | 2.5V/3.3V   | 130 nm       | 14 x 10, 23 x 17      | 117 BGA, 128 MQFP        |
| BCM5461S  | GE/FE           | 1            | 1           | 1             |        | 1     | 1     |     |      |             |                                 |             |           | ✓      | 8                  |                | 2.5V/3.3V   | 130 nm       | 14 x 10, 23 x 17      | 117 BGA, 128 MQFP        |
| BCM54610  | GE/FE           | 1            |             |               |        |       | 1     |     |      |             |                                 |             |           | ✓      | 4                  |                | 1.2V/3.3V   | 65 nm        | 7 x 7, 9 x 9          | 48 MLP, 100 BGA          |
| BCM54616  | GE/FE           | 1            |             | 1             |        |       |       | 1   |      |             |                                 |             |           | ✓      | 4                  | ✓              | 1.2V/3.3V   | 65 nm        | 10 x 10, 9 x 9        | 68 MLP, 100 BGA          |
| BCM54616S | GE/FE           | 1            | 1           |               |        | 1     | 1     | 1   |      |             |                                 |             |           | ✓      | 4                  | ✓              | 1.2V/3.3V   | 65 nm        | 9 x 9                 | 100 BGA                  |
| BCM5482   | GE/FE           | 2            | 2           |               |        |       | 1     |     |      |             |                                 |             |           | ✓      | 2                  |                | 2.5V/3.3V   | 130 nm       | 12 x 12               | 121 BGA                  |
| BCM5482S  | GE/FE           | 2            | 2           |               |        | 1     | 1     |     |      |             |                                 |             |           | ✓      | 2                  |                | 2.5V/3.3V   | 130 nm       | 12 x 12               | 121 BGA                  |
| BCM5482SH | GE/FE           | 2            | 2           |               |        | 1     | 1     |     |      |             |                                 |             |           | ✓      | 4                  |                | 2.5V/3.3V   | 130 nm       | 12 x 12               | 121 BGA                  |
| BCM5464   | GE/FE           | 4            | 4           | 1             |        | 1     | 1     |     |      |             |                                 |             |           |        | 4                  |                | 2.5V/3.3V   | 130 nm       | 21 x 21               | 354 BGA                  |
| BCM5464R  | GE/FE           | 4            | 4           |               |        | 1     | 1     |     |      |             |                                 |             |           |        | 4                  |                | 2.5V/3.3V   | 130 nm       | 17 x 17               | 256 FBGA                 |
| BCM5464S  | GE/FE           | 4            | 4           | 1             |        | 1     | 1     |     |      |             |                                 |             | ✓         | 4      |                    | 2.5V/3.3V      | 130 nm      | 21 x 21      | 354 BGA               |                          |
| BCM5464SR | GE/FE           | 4            | 4           |               |        | 1     | 1     |     |      |             |                                 |             |           |        | 4                  |                | 2.5V/3.3V   | 130 nm       | 17 x 17               | 256 FBGA                 |
| BCM54612E | GE/FE           | 1            |             |               |        |       | 1     |     |      |             | ✓                               |             | ✓         | 4      | ✓                  | 1.2V/3.3V      | 65 nm       | 7 x 7, 9 x 9 | 48 MLP, 100 BGA       |                          |
| BCM54282  | GE/FE           | 8            |             |               | 2      |       |       |     |      | ✓           | ✓                               | ✓           | ✓         |        | 4                  | ✓              | 1.0V/3.3V   | 40 nm        | 17 x 17               | 256 BGA                  |
| BCM54285  | GE/FE           | 8            | 8           |               | 2      |       |       |     |      | ✓           | ✓                               | ✓           | ✓         | ✓      | 4                  | ✓              | 1.0V/3.3V   | 40 nm        | 21 x 21               | 400 BGA                  |

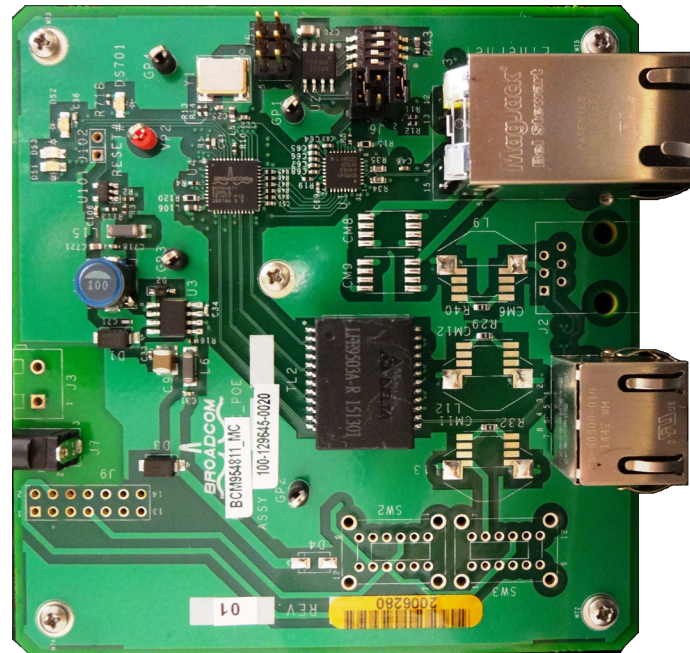
# MASS MARKET PLATFORM PHY SOLUTIONS

The Broadcom BCM54811 is a single fully integrated BroadR-Reach<sup>®</sup> and triple-speed 10/100/1000BASE-T Gigabit Ethernet transceiver. The BCM54811 provides support for, and exceeds, IEEE noise cancellation and transmission jitter specifications for a host of physical layer functions such as 1000BASE-T, 100BASE-TX, and 10BASE-T on standard Category 3, 4, and 5 UTP cable. Additionally, BroadR-Reach functionality enables the BCM54811 to extend cable reach to 300m at 100 Mbps or 500m at 10 Mbps modes (depending on cable type, individual parametrics, and number of pairs used). The BCM54811S supports both SGMII and RGMII MAC interfaces.



*BCM54811 BroadR-Reach  
Transceiver*

*BCM954811\_MC Evaluation Board*



The BCM954811\_MC board was specifically designed to evaluate the BroadR-Reach capabilities of the BCM54811 device.

MASS MARKET PLATFORM

# RoboSwitch™ SOLUTIONS

Offered in 5-24 port configurations supporting both Fast Ethernet and Gigabit Ethernet (GbE), Broadcom's RoboSwitch Ethernet Switching solutions are highly integrated, cost-effective, and smart-managed based on a field-proven, industry-leading architecture. These Fast Ethernet and Gigabit Ethernet solutions combine all of the functions of a high-speed switch system including packet buffers, PHY transceivers, media access controllers (MACs), address management, port-based rate control, and a nonblocking switch fabric into a single CMOS device. Designed to be fully compliant with the IEEE 802.3™ and IEEE 802.3x specifications, including the MAC-control PAUSE frame, RoboSwitch provides compatibility with all industry-standard Ethernet specifications.

| Switch                              | Description   | FE | GbE | 2.5G | Integrated PHYs | U/S/M | Integrated MCU | Interfaces               | Packet Buffer | # of MAC Addresses | # of VLAN Addresses | # of QoS Queues/Ports | Package Type  | Package Size (mm) |  |
|-------------------------------------|---|----|-----|------|-----------------|-------|----------------|--------------------------|---------------|--------------------|---------------------|-----------------------|---------------|-------------------|--|
| <b>Robo Fast Ethernet Solutions</b> |   |    |     |      |                 |       |                |                          |               |                    |                     |                       |               |                   |  |
| <b>BCM53101M</b>                    | 5-port 10/100 Switch + MII + 1 GMAC                               | 6  | 1   |      | 5               | M     |                | GMII/RGMII/RvMII/RMII    | 64 KB         | 2k                 | 4k                  | 6                     | 132-pin DRQFN | 10 x 10           |  |
| <b>BCM53101P</b>                    | 5-port 10/100 Switch + MII + 1 GMAC                               | 5  | 1   |      | 5               | M     |                | GMII/RGMII/RvMII/RMII    | 64 KB         | 2k                 | 4k                  | 6                     | 132-pin DRQFN | 10 x 10           |  |
| <b>BCM53101E</b>                    | 5-port 10/100 Switch + MII + 1 GMAC                               | 6  |     |      | 5               | M     |                | MII/RvMII                | 64 KB         | 2k                 | 4k                  | 6                     | 132-pin DRQFN | 10 x 10           |  |
| <b>BCM53106M</b>                    | 6-port 10/100 Switch with Integrated 4-FE PHY                     | 4  | 2   |      | 5               | M/S   | 8051           | GMII/RGMII/RvMII         | 128 KB        | 4k                 | 4k                  | 8                     | 212-pin FBGA  | 12 x 12           |  |
| <b>BCM53106O</b>                    | 6-port 10/100 Switch with Integrated 4-FE PHY                     | 4  | 2   |      | 5               | M/S   | 8051           | GMII/RGMII/RvMII         | 128 KB        | 4k                 | 4k                  | 8                     | 212-pin FBGA  | 12 x 12           |  |
| <b>BCM53106P</b>                    | 6-port 10/100 Switch with Integrated 4-FE PHY                     | 4  | 2   | 1    | 5               | M/S   | 8051           | GMII/RGMII/RvMII         | 128 KB        | 4k                 | 4k                  | 8                     | 212-pin FBGA  | 12 x 12           |  |
| <b>BCM53106S</b>                    | 6-port 10/100 Switch with Integrated 4-FE PHY                     | 4  | 2   | 1    | 5               | M/S   | 8051           | GMII/RGMII/RvMII         | 128 KB        | 4k                 | 4k                  | 8                     | 212-pin FBGA  | 12 x 12           |  |
| <b>BCM53107</b>                     | 7-port 10/100 Switch with Integrated EEE PHY                      | 5  | 2   |      | 5               | M/S   | 8051           | GMII/RGMII/RvMII         | 128 KB        | 4k                 | 4k                  | 6                     | 186-pin MML   | 12 x 12           |  |
| <b>BCM53108</b>                     | 8-port FE Switch with Integrated PHY + 1GbE                       | 8  | 1   |      | 8               | U/S   | 8051           | GMII/RGMII/RvMII         | 192 KB        | 4k                 | 4k                  | 6                     | 256-pin eLQFP | 28 x 28           |  |
| <b>BCM53108V</b>                    | 7-port FE Switch with Integrated PHY + 2GbE                       | 7  | 2   |      | 7               | U/S   | 8051           | GMII/RGMII/RvMII         | 192 KB        | 4k                 | 4k                  | 6                     | 256-pin eLQFP | 28 x 28           |  |
| <b>BCM53202</b>                     | 8-port FE Switch with Integrated PHY + 2GbE                       | 8  | 2   |      | 8               | M/S   |                | GMII/RGMII/RvMII         | 384 KB        | 8k                 | 4k                  | 4                     | 400-pin PBGA  | 27 x 27           |  |
| <b>BCM53212</b>                     | 16-port FE Switch with Integrated PHY + 2GbE (GMII/RGMII)         | 16 | 2   |      | 16              | M/S   |                | GMII/RGMII/RvMII         | 384 KB        | 8k                 | 4k                  | 4                     | 400-pin PBGA  | 27 x 27           |  |
| <b>BCM53242</b>                     | 24-port FE Switch with Integrated PHY + 2GbE (GMII/RGMII)         | 24 | 2   |      | 24              | M/S   |                | GMII/RGMII/RvMII         | 384 KB        | 8k                 | 4k                  | 4                     | 400-pin PBGA  | 27 x 27           |  |
| <b>BCM53262</b>                     | 24-port FE Switch with Integrated PHY + 4GbE (GMII/RGMII)         | 24 | 4   |      | 24              | M/S   |                | GMII/RGMII/RvMII         | 384 KB        | 8k                 | 4k                  | 4                     | 676-pin PBGA  | 35 x 35           |  |
| <b>BCM53282</b>                     | Managed 8-port FE Switch with Integrated PHY + 2GbE               | 8  | 2   |      | 8               | M/S   |                | GMII/RGMII/RvMII         | 1.5 MB        | 16k                | 4k                  | 8                     | 400-pin PBGA  | 27 x 27           |  |
| <b>BCM53283</b>                     | Managed 16-port FE Switch with Integrated PHY + 2GbE              | 16 | 2   |      | 16              | M/S   |                | GMII/RGMII/RvMII         | 1.5 MB        | 16k                | 4k                  | 8                     | 400-pin PBGA  | 27 x 27           |  |
| <b>BCM53284</b>                     | Managed 24-port FE Switch with Integrated PHY + 2GbE              | 24 | 2   |      | 24              | M/S   |                | GMII/RGMII/RvMII         | 1.5 MB        | 16k                | 4k                  | 8                     | 400-pin PBGA  | 27 x 27           |  |
| <b>BCM53285</b>                     | Managed 16-port FE Switch with Integrated PHY + 4GbE              | 16 | 4   |      | 16              | M     |                | SerDes/SGMII/RGMII/RvMII | 1.5 MB        | 16k                | 4k                  | 8                     | 676-pin PBGA  | 35 x 35           |  |
| <b>BCM53286</b>                     | Managed 24-port FE Switch with Integrated PHY + 4GbE              | 24 | 4   |      | 24              | M/S   |                | SerDes/SGMII/RGMII/RvMII | 1.5 MB        | 16k                | 4k                  | 8                     | 676-pin PBGA  | 35 x 35           |  |
| <b>BCM53288</b>                     | Managed 24-port FE Switch with Integrated PHY + 2GbE + 2.5G SGMII | 24 | 2   | 1    | 24              | M     |                | SerDes/SGMII/RGMII/RvMII | 1.5 MB        | 16k                | 4k                  | 8                     | 676-pin PBGA  | 35 x 35           |  |

# RoboSwitch™/StrataConnect™ SOLUTIONS

| Switch                                       | Description                                      | FE | GbE | 2.5G | Integrated PHYs | U/S/M | Integrated MCU | Interfaces                  | Packet Buffer | # of MAC Addresses | # of VLAN Addresses | # of QoS Queues/Ports | Package Type  | Package Size |
|--|--|----|-----|------|-----------------|-------|----------------|-----------------------------|---------------|--------------------|---------------------|-----------------------|---------------|--------------|
| <b>RoboSwitch Gigabit Ethernet Solutions</b> |  |    |     |      |                 |       |                |                             |               |                    |                     |                       |               |              |
| BCM53124                                     | 6-port GbE Switch with Integrated EEE PHY        |    | 6   |      | 4               | M/S   | 8051           | GMII/RGMII/MII/RvMII        | 128 KB        | 4k                 | 4k                  | 6                     | 186-pin MML   |              |
| BCM53134M                                    | 6-port GbE Switch with Integrated EEE PHY        |    | 6   |      | 4               | M/S   | 8051           | GMII/RGMII/MII/RvMII        | 128 KB        | 4k                 | 4k                  | 8                     | 212-pin FBGA  |              |
| BCM53134O                                    | 6-port GbE Switch with Integrated EEE PHY        |    | 6   | 1    | 4               | M/S   | 8051           | GMII/RGMII/MII/RvMII        | 128 KB        | 4k                 | 4k                  | 8                     | 212-pin FBGA  |              |
| BCM53134P                                    | 6-port GbE Switch with Integrated EEE PHY        |    | 6   | 1    | 4               | M/S   | 8051           | GMII/RGMII/MII/RvMII        | 128 KB        | 4k                 | 4k                  | 8                     | 212-pin FBGA  |              |
| BCM53134S                                    | 6-port GbE Switch with Integrated EEE PHY        |    | 6   |      | 4               | M/S   | 8051           | GMII/RGMII/MII/RvMII        | 128 KB        | 4k                 | 4k                  | 8                     | 212-pin FBGA  |              |
| BCM53125                                     | 7-port GbE Switch with Integrated EEE PHY        |    | 7   |      | 5               | U/M/S | 8051           | GMII/RGMII/MII/RvMII        | 128 KB        | 4k                 | 4k                  | 6                     | 186-pin MML   |              |
| BCM53128                                     | 8-port GbE Switch with Integrated EEE PHY + 1GbE |    | 9   |      | 8               | U/M/S | 8051           | GMII/RGMII/MII/RvMII        | 192 KB        | 4k                 | 4k                  | 6                     | 256-pin eLQFP |              |
| BCM53128V                                    | 7-port GbE Switch with Integrated EEE PHY + 2GbE |    | 9   |      | 7               | U/M/S | 8051           | GMII/RGMII/MII/RvMII        | 192 KB        | 4k                 | 4k                  | 6                     | 256-pin eLQFP |              |
| BCM5387                                      | 5-port Switch SGMII                              |    | 5   |      | SerDes          | M     |                | GMII/RGMII/MII/RvMII/SerDes | 128 KB        | 4k                 | 4k                  | 4                     | 256-pin FBGA  |              |
| BCM5389                                      | 8-port Switch SGMII                              |    | 8   |      | SerDes          | M     |                | GMII/RGMII/MII/RvMII/SerDes | 128 KB        | 4k                 | 4k                  | 4                     | 256-pin FBGA  |              |
| BCM5396                                      | 16-port Switch SGMII                             |    | 16  |      | SerDes          | M     |                | GMII/RGMII/MII/RvMII/SerDes | 256 KB        | 4k                 | 4k                  | 4                     | 256-pin FBGA  |              |

StrataConnect switches deliver the industry’s most powerful and cost-effective connectivity solutions for all markets served. StrataConnect provides highly integrated and scalable silicon and software solutions while offering advanced features and unified architecture that provide customers with strategic time-to-market advantages.

| Switch  | Description  | U/S/M | 1GbE Ports | 10GbE Ports | HiGig[13] | # of Integrated GPHYs | QSGMII | Integrated CPU | CPU Interface | Packet Buffer | # of MAC Addresses | # of VLANs | IFP Rules/Slices | # of QoS Queues/Ports | Package Type  | Package Size |
|---|--|-------|------------|-------------|-----------|-----------------------|--------|----------------|---------------|---------------|--------------------|------------|------------------|-----------------------|---------------|--------------|
| <b>StrataConnect Gigabit Ethernet Solutions</b> |  |       |            |             |           |                       |        |                |               |               |                    |            |                  |                       |               |              |
| BCM53333  | 16-port GE Switch w/ Integrated EEE PHY & CPU - UM | U     | 16         |             |           | 16                    |        | ARM            | SPI, BSC      | 512 KB        | 8k                 | 4k         | 512/4            | 8                     | 648-pin FCGBA | 23 x 23 mm   |
| BCM53334  | 24-port GE Switch w/ Integrated EEE PHY & CPU      | U     | 24         |             |           | 16                    | 2      | ARM            | SPI, BSC      | 512 KB        | 8k                 | 4k         | 512/4            | 8                     | 648-pin FCBGA | 23 x 23 mm   |

# ABOUT BROADCOM

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