# Semiconductor Solutions for High Speed Communication and Fiber Optic Applications

**FOA4400 16:1 MUX**
Multiplexer with Clock Multiplication Unit
MUX 39.8 - 43 Gbit/s, 5.5 V

**FOA9400 1:1 FIFO**
Data Synchronization
FIFO 2.5 - 2.7 Gbit/s, 5.5 V

**FOA5400 2:16 DEMUX**
Demultiplexer
DEMUX 39.8 - 43 Gbit/s, 5.5 V

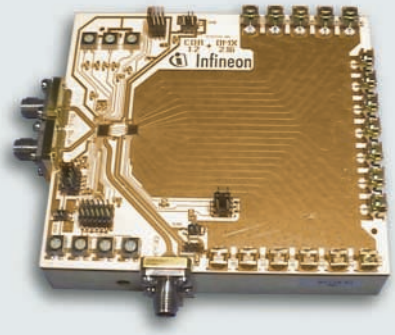
**FOA5401 1:2 CDR**
Clock and Data Recovery with 1:2 Demultiplexer
CDR 39.8 - 43 Gbit/s, 5.5 V


The 40 Gbit/s transceiver chipset (MUX+FIFO and CDR+DEMUX) provide highly integrated SerDes (SERializer-DESerializer) functionality with a 1:16 ratio. The 16 times 2.5 Gbit/s data signals are multiplexed to a single serial 40 Gbit/s data stream and vice versa. The devices support datarates from 39.8 Gbit/s up to 43 Gbit/s (OC-768/STM-256) with optional FEC (Forward Error Correction). All four chips are manufactured in Infineon's leading-edge Silicon-Germanium B7HF technology enabling low power consumption.

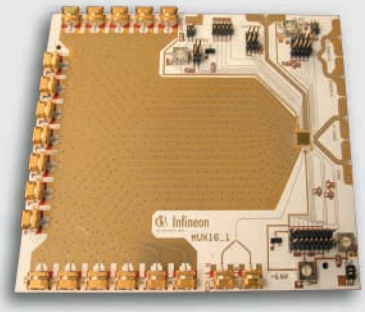
The multiplexer FOA4400, FIFO FOA9400, demultiplexer FOA5400 and CDR FOA5401 feature CML interfaces, integrated VCOs (Voltage-Controlled Oscillator) and two reference clocks (622 MHz/2.5 GHz). The FOA4400 incorporates the CMU and selectable 20 GHz and 40 GHz clock outputs, whereas optional data synchronization is provided by the FOA9400. The FOA5400 and FOA5401 integrate CDR and demultiplexing functionality with extremely high input sensitivity.



CDR-DEMUX Evaluation Board




MUX Evaluation Board




## Features

- Supports data rates from 39.8 Gbit/s to 43 Gbit/s
- Infineon's leading-edge SiGe B7HF technology
- 1:16 (= 1:2 and 2:16) and 16:1 multiplexing ratio
- On-chip VCO, external VCO input available
- 622 MHz or 2.5 GHz reference clock
- Adjustable sampling threshold and phase
- Integrated pre-amplifier with high input sensitivity
- Selectable 20 GHz and 40 GHz output clock
- FIFO depth of 6 Bits

## Typical Applications

- Fiber optics telecom and datacom applications
- SONET/SDH OC-768/STM-256 with and without FEC

## Main Advantages

- Data rate from 39.8 Gbit/s up to 43 Gbit/s
- SiGe chipset providing complete functionality: CMU, CDR, FIFO and VCO
- Single supply voltage of 5.5 V
- High CDR sensitivity with adjustable sampling
- On-chip VCO together with external VCO input

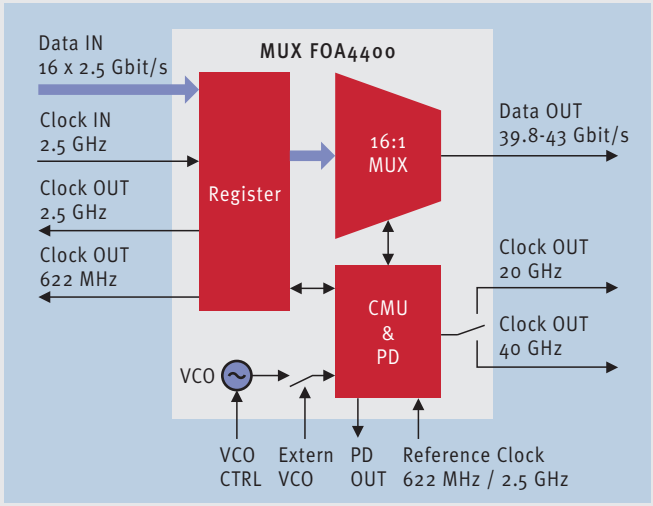
# FOA4400/9400/5400/5401

MUX/FIFO/DEMUX/CDR
39.8 - 43 Gbit/s, 5.5 V

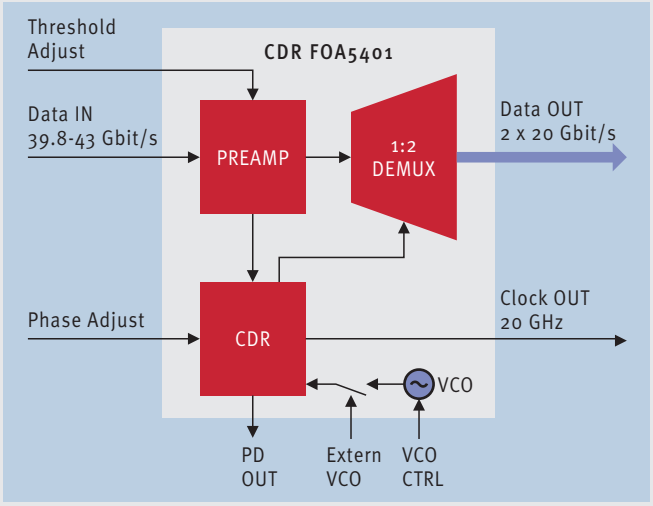
Infineon technologies

Never stop thinking.

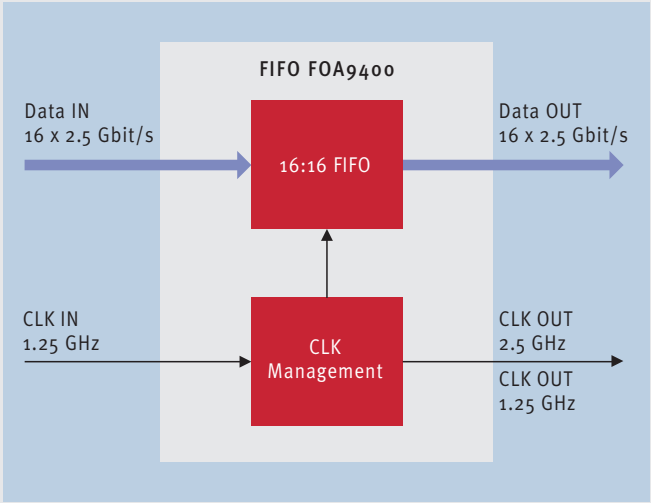
## FOA4400 MUX Block Diagram



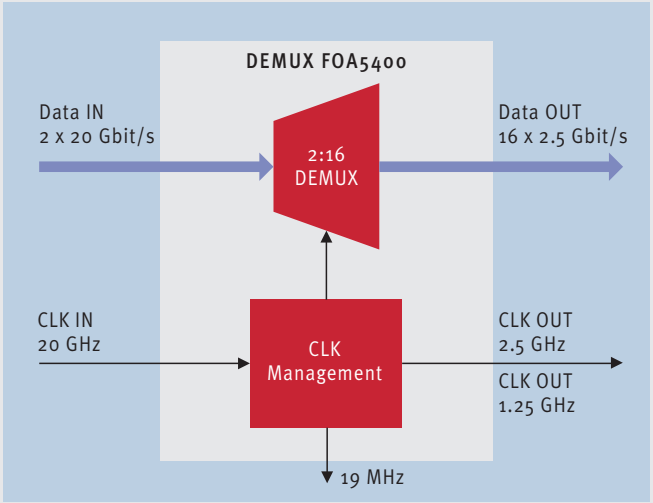

## FOA5401 CDR Block Diagram



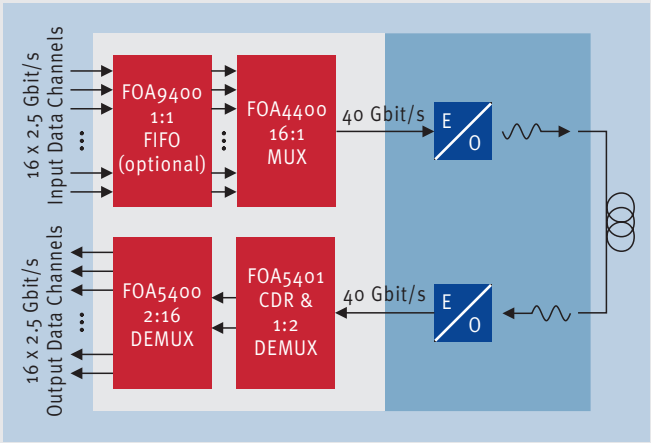

## FOA9400 FIFO Block Diagram




## FOA5400 DEMUX Block Diagram




## 40 Gbit/s Chipset Overview




### Packing

| Type | Sales Code | Package |
|---|---|---|
| MUX 16:1 | FOA4400 | Bare Die |
| FIFO 1:1 | FOA9400 | Bare Die |
| DEMUX 2:16 | FOA5400 | Bare Die |
| CDR 1:2 | FOA5401 | Bare Die |

How to reach us:
**http://www.infineon.com**

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