



SDN Engine

MangoBoost's Software Defined Network Engine offers (MB-SDN) offers scalable & **fully** P4 programmable packet processing at 100Gbps.

Key Features

SDN engine

- Fully P4 programmable packet processing engine
 - Various P4 externs available (e.g., checksum, hash, security)
- 100 Gbps performance on single-port
- Supports 2K exact match, 512 TCAM match (to be extended to >1M)
- Provides P4/OVS compatible driver (TBA – 2023)

Network virtualization

- Supports SR-IOV with 8-16 VFs (Currently limited to FPGA resources and will be extended)
- VirtIO HW acceleration
- Supports VirtIO compatible driver (vDPA-kernel driver)
- Supports CNF compatibility

Other features

- Allows custom IP integration using standard AXI interfaces
- Written in C-based HLS (AMD Vivado)
- SystemC version available soon (Siemens Catapult HLS) for portability to other FPGA/ASIC targets

Application Use Cases

- VNF/CNF orchestration
 - Openstack, Antrea
- Packet processing
 - Firewall, NAT, VXLAN, Contrack

Case Study

- **Setup:** MB-SDN on AMD U280 FPGA with 100Gbps network on Intel Xeon Gold 6338 host server
- MB-SDN runs at 250 MHz and uses XXX LUTs, XXX FFs, XXX BRAMs

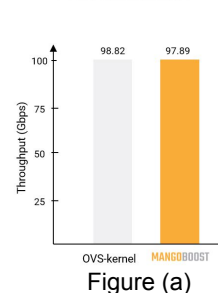
[CNF]

- Saves CPU cycles by XX% (Figure b) while achieving 100Gbps (Figure a)

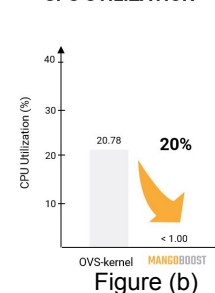
[VNF]

- Saves CPU cycles by XX% (Figure c) and achieves the same performance as OVS-DPDK

PERFORMANCE



CPU UTILIZATION

CPU UTILIZATION
Nginx Web Server + VXLAN