

# Design and development (LSI products)

## LSI design and development, and library development

### ▶ Digital design engineering

#### ◆ Proposals for design development flows and design engineering of LSI products

Entire processes from specifications design to implementation are supported by abundant LSI development expertise cultivated as IDM(\*1) .

Latest design method and know-how contribute to designs and development with short TAT.

\*1 : IDM = Integrated Device Manufacturer

#### ◆ LSI development results

##### Development results

Abundant development results by fabrication, advanced process, VLSI, and high frequency

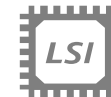
- Fabrication SEC, TSMC, GF, UMC, and JSC(\*2)
- Process To 5 nm
- Scale 150 M gates
- Frequency 1GHz

\*2: JSC = Japan Semiconductor Corporation

##### Abundant LSI development results



Image processing



Micro controllers  
(Arm®/DSP)



MFPs  
(Control chips)



Road traffic system  
(Automotive LSIs)



Memory cards  
(Internal bridge circuits)



Image sensors  
(Image processing control)

# Design and development (LSI products)

## ► Analog design engineering

### ◆ Library development results

#### Process support results

Abundant results by fabrication and advanced process

- Fabrication SEC, TSMC, UMC, JSC<sup>(\*1)</sup> (CMOS, CD, BiCD)
- Process To 16nm
- Related products SoC, ASIC, linear sensors, area sensors

\*1: JSC = Japan Semiconductor Corporation

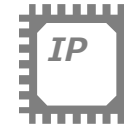
#### Inquiries

Marketing div.  
TEDS-skaiki@ml.toshiba.co.jp  
Tel +81-44-548-2130

#### Abundant development results



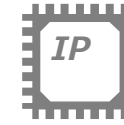
Automotive products



IPs for microcontrollers



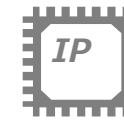
Consumer MCDs



IPs for RF (high frequency)



Memory cards



GPIO, PLL  
Oscillators, ADC,  
and DAC