



TowerJazz IP Portfolio

September 2011

The Global Specialty Foundry Leader

TS18SL – 0.18um Standard Logic

STD cells

Vendor	Library
ARM	Sage X - STD Cell Library
ARM	Metro STD cell Library
Tower	FS310 3.3V STD cells
Tower	FS120 STD Cells
Tower	FS020 STD Cells 0.18um LV 0.9-2.2v Library
Tower	FS510 5V STD Cells

Memories

Vendor	Library
ARM	RA1 Single-Port SRAM
ARM	RA2 Dual-Port SRAM
ARM	RF1 Single-Port Register File
ARM	RF2 Two-Port Register File
ARM	Via ROM Generator
Tower	RS160 Single Port SRAM
Tower	RD130 Dual Port SRAM
Tower	RO160 Via ROM
Synopsys	ASAP – Single Port SRAM
Synopsys	ASAP - Dual-Port Register File
Synopsys	ASAP – Via ROM
Synopsys	ASAP – Dual Port SRAM

IO Library

Vendor	Library
ARM(Artisan)	GPIO Inline I/O Pad Library
ARM(Artisan)	GPIO Staggered I/O Pad Library
Tower	CIO150 1.8v Super Compact Inline I/O
Tower	CIO250 3.3v Super Compact Inline I/O
Tower	CIO250 3.3v Super Compact Top-Thick-Metal Inline I/O
Tower	CIO150 1.8v Super Compact Top-Thick-Metal Inline I/O
Tower	PIO150 1.8v Super Compact Inline Pad Over Logic I/O
Tower	PIO250 3.3v Super Compact Inline Pad Over Logic I/O
Tower	PIO510 5V/1.8V, 5V Only, ESD
Tower	IO510 5V/1.8V, 5V Only, ESD
ARM	USB 1.1 IO designed for 0.16um

TS18SL – 0.18um Standard Logic

Analog IPs

Vendor	Library
Synopsys	WLAN baseband AFE (802.11abg)
Synopsys	16-bit, 9.6kHz, General Purpose Codec
Synopsys	Oscillator LP 32KHz
Synopsys	PLL 50-250MHz
Synopsys	PLL 25MHz-250MHz Fcomp minimum 1MHz
Synopsys	PLL 225-500MHz
Synopsys	PLL 325-700MHz
Synopsys	20B Audio Stereo DAC 2pF Load
Synopsys	20B Audio Stereo DAC 40pF Load
Synopsys	USB2.0 LS/FS (USB1.1 Transceiver)
Synopsys	USB2.0 OTG UTMI+ Level 3 PHY
Synopsys	USB2.0 PHY

Analog IPs

Vendor	Library
Synopsys	BGAP 3V
Synopsys	Capless LDO Voltage Regulator
Synopsys	LDO Voltage Regulator
S3	10 Bit 60 MSPS Pipeline ADC
S3	10 Bit 30 MSPS Pipeline ADC
Tower	Transmitter part in the RF Front End - 5GHz
Tower	RF Front End Receiver - 5GHz
MOSCAD	13 bits 2.56MS/s SAR ADC
MOSCAD	Low-power Bandgap
MOSCAD	Low-noise Bandgap reference
MOSCAD	Current steering DAC
MOSCAD	Line driver 0.5A

Analog IPs

Vendor	Library
MOSCAD	Power-on reset circuit for 1.8V and 3.3V
MOSCAD	VGA with gain 0.5 to 128
MOSCAD	120mA 3.3V to 1.8V regulator
Mixel	80 Mbps to 1Gbps data rate MIPI Tranciever
Mixel	MDDI T2 Client PHY compliant with VESA MDDI Client spec
Mixel	4 Channel LVDS Serializer with 25MHz to 165MHz input clock.
Mixel	LVDS TX up to 1.25 Gbps.
Mixel	LVDS transceiver up to 600 Mbps.
Mixel	MIPI slave compliant with 1.0 standard for D-PHY
Mixel	High performance PLL based frequency synthesizer.
CEVA	Digital PLL up to 650 MHz

TS18SL – 0.18um Standard Logic

NVM

Vendor	IP
Kilopass	XPM Module (OTP Core)
Synopsys	NOVeA 2.0
Synopsys	NOVeA
Sidense	SLP OTP Memory
Novocell	NVM SmartBit™ Technology
Tower	64 bit Yflash module 5V
Tower	64 bit Yflash module 3.3V
Tower <i>New!</i>	16K bit Yflash module 3.3V for 0.16um
Tower <i>New!</i>	ePolyFuse

Processors

Vendor	Library
ARM	ARM7TDMI - 32B RISC Processor
ARM	ARM922T - 32B RISC Processor
Ceva	CEVA Teak 1.8v DSP Core
Ceva	CEVA Xpert-Teak 1.8v DSP Sub-System

RF IPs

Vendor	Library
Sieva Networks	LNA SN035 <i>New!</i>
Sieva Networks	RF Mixer SN055 <i>New!</i>
Sieva Networks	VCO SN040 <i>New!</i>

TS18PM – 0.18um Power Management

STD cells

Vendor	Library
ARM	Sage X - STD Cell Library 1.8V
ARM	Metro STD cell Library 1.8V
Tower	FS120 STD Cells 1.8V
Tower	FS020 STD Cells 0.18um LV 0.9-2.2v Library
Tower	FS510 5V STD Cells, Isolated P-Well

Memories

Vendor	Library
ARM	RA1 Single-Port SRAM 1.8V
ARM	RA2 Dual-Port SRAM 1.8V
ARM	RF1 Single-Port Register File 1.8V
ARM	RF2 Two-Port Register File 1.8V
ARM	Via ROM Generator 1.8V
Tower	RS160 Single Port SRAM 1.8V
Tower	RD130 Dual Port SRAM 1.8V
Tower	RO160 Via ROM 1.8V
Synopsys	ASAP – Single Port SRAM 1.8V
Synopsys	ASAP - Dual-Port Register File 1.8V
Synopsys	ASAP – Via ROM 1.8V
Synopsys	ASAP – Dual Port SRAM 1.8V

IO Library

Vendor	Library
Tower	PIO510 5V/1.8V, 5V Only, ESD, Isolated P-Well
Tower	IO510 5V/1.8V, 5V Only, ESD

NOTE: Using the memories is limited to using the 4M1L or 5MXX metallization

TS18PM – 0.18um Power Management

NVM

Vendor	IP
Tower	64 bit Yflash module 5V
Tower	4 Kbit Yflash module 5V with Charge Pump

TS13SL – 0.13um Standard Logic

STD cells

Vendor	Library
ARM	Sage X2 - STD Cell Library
ARM	SC7 (Metro) library SVt
ARM	PMK (Power Management Kit) SVt/HVt
ARM	SC7 (Metro) library HVt
ARM	PMK (Power Management Kit) HVt
Synopsys	ASAP - HD STD Cells
Synopsys	ASAP - HS Metal Programmable STD Cells
Tower	FS120 STD cell library

Memories

Vendor	Library
ARM	SP SRAM
ARM	SP-SRAM HVt
ARM	DP SRAM
ARM	Via ROM Generator
ARM	RF-1P
ARM	RF-2P
Synopsys	ASAP - 1PHD 2.14 Bitcell
Synopsys	ASAP - 1PRF
Synopsys	ASAP - 2PHD
Synopsys	ASAP - 2PRF
Synopsys	STAR - 1PHD 2.14 Bitcell
Synopsys	STAR - 2PHD
Synopsys	ASAP - VROM

IO Library

Vendor	Library
ARM	NGPIO PL 3.3V
ARM	GPIO Inline Pad Library 3.3v
ARM	GPIO Staggered Pad Library 3.3v
Synopsys	3.3v Base I/O
Aragio	ESD I/O Interface for High-speed USB OTG

TS13SL – 0.13um Standard Logic

Analog IPs

Vendor	Library
ARM	HSTL Class I PL 3.3V 1.5V 266MHz
ARM	HSTL Class II PL 3.3V 1.5V 266MHz
ARM	SSTL2 Class I PL 3.3V 210MHz
ARM	SSTL2 Class II PL 3.3V 250MHz
ARM	LVDS SE PL 3.3V 850MHz
Synopsys	PLL 25-250MHz
Synopsys	PLL 56.25-500MHz
Synopsys	USB2.0 OTG UTMI+ Level 3 PHY
MOSCAD	LVDS (receiver, transmitter, reference)

NVM

Vendor	Library
Synopsys	AEON/MTP Parallel
Kilopass	XPM OTP
Novocell	NVM SmartBit™ Technology
Tower	ePolyFuse <i>New!</i>

TS13LL – 0.13um Low Leakage

STD cells

Vendor	Library
Synopsys	ASAP - HS Metal Programmable STD Cells
Synopsys	ASAP - HD STD Cells

Memories

Vendor	Library
Synopsys	ASAP - 1PHD 2.14 Bitcell
Synopsys	ASAP - 1PRF
Synopsys	ASAP - 2PHD
Synopsys	ASAP - 2PRF

IO Library

Vendor	Library
Synopsys	3.3v Base I/O
Aragio	ESD I/O Interface for High-speed USB OTG

TS13LL – 0.13um Low Leakage

Analog IPs

Vendor	Library
Synopsys	PLL 25-250MHz
Synopsys	PLL 56.25-500MHz
Synopsys	USB2.0 OTG UTMI+ Level 3 PHY

NVM

Vendor	Library
Synopsys	AEON/MTP Parallel

CA18/SBC18 – 0.18um Standard Logic / RF/ SiGe

STD cells

Vendor	Library
ARM	Sage X –STD Cell Library 1.8V
ARM	Metro – STD Cell Library 1.8V
Conexant	STD Cell Library 3.3v
Conexant	STD Cell Library 5.0v

Memories

Vendor	Library
ARM	RA1 Single-Port SRAM 1.8V
ARM	RA2 Dual-Port SRAM 1.8V
ARM	RF1 Single-Port Register File 1.8V
ARM	RF2 Two-Port Register File 1.8V
ARM	ROD Diffusion ROM 1.8V

IO Library

Vendor	Library
Conexant	GPIO Inline Pad Library 3.3v/1.8v
Conexant	GPIO Inline Pad Library 3.3v-only
Conexant	GPIO Inline Pad Library 5.0v-only

NOTE: Using the memories is limited to using the 5ML or 6ML

CA18/SBC18 – 0.18um Standard Logic / RF/ SiGe

Analog IPs

Vendor	Library
SaberTek <i>New!</i>	LNA, 57~67GHz (SBR_LNA_60G_JSG18_1)
SaberTek <i>New!</i>	LNA, 23~29GHz (SBR_LNA_24G_JSG18_1)
SaberTek <i>New!</i>	LNA, 77~82GHz (SBR_LNA_77G_JSG18_1)
SaberTek <i>New!</i>	LNA, 75~105GHz (SBR_LNA_94G_JSG18_1)
SaberTek <i>New!</i>	LNA, 75~105GHz (SBR_LNA_94G_JSG18_2)
SaberTek <i>New!</i>	RXMIX, 57~66GHz (SBR_RXMX_60G_JSG18_1)
SaberTek <i>New!</i>	RXMIX, 23~29GHz (SBR_RXMX_24G_JSG18_1)
SaberTek <i>New!</i>	RXMIX, 77~82GHz (SBR_RXMX_77G_JSG18_1)
SaberTek <i>New!</i>	LPF, 1~900GHz (SBR_LPF_900M_JSG18_1)
SaberTek <i>New!</i>	PGA, 1~900GHz (SBR_PGA_30dB_900_JSG18_1)

Analog IPs

Vendor	Library
SaberTek <i>New!</i>	Complete RX, 57~67GHz (SBR_RX_60G_JSG18_1)
SaberTek <i>New!</i>	LNA+Detector, 75~105GHz (SBR_RX_94G_JSG18_1)
SaberTek <i>New!</i>	PA, 57~67GHz (SBR_PA_60G_JSG18_1)
SaberTek <i>New!</i>	PA, 57~67GHz (SBR_PA_60G_JSG18_2)
SaberTek <i>New!</i>	PA, 21~27GHz (SBR_PA_24G_JSG18_1)
SaberTek <i>New!</i>	PA, 75~80GHz (SBR_PA_77G_JSG18_1)
SaberTek <i>New!</i>	TXMIX, 57~67GHz (SBR_TXMX_60G_JSG18_1)
SaberTek <i>New!</i>	Complete TX, 57~67GHz (SBR_TX_60G_JSG18_1)
SaberTek <i>New!</i>	VCO, 40GHz (SBR_VCO_40G_JSG18_1)
SaberTek <i>New!</i>	Programmable Frequency Divider, 40GHz (SBR_FDIV_40G_JSG18_1)

Analog IPs

Vendor	Library
SaberTek <i>New!</i>	PFD + CP, 0.01~0.04GHz (SBR_PFDPCP_40M_JSC18_1)
SaberTek <i>New!</i>	Xtal buffer, 0.01~0.04GHz (SBR_XTLBUF_40M_JSG18_1)
SaberTek <i>New!</i>	Complete SX, 40GHz (SBR_SX_40G_JSG18_1)
SaberTek <i>New!</i>	LNA, 0.6~3GHz (SBR_LNA_WB_JSC18_1)
SaberTek <i>New!</i>	RXMIX,TIA, 0.7~3GHz (SBR_RXMX_2G_JSG18_1)
SaberTek <i>New!</i>	LNA,MIX,TIA, 0.7~3GHz (SBR_RXFE_WB_JSC18_1)
SaberTek <i>New!</i>	RXFE,LPF,PGA, 0.7~3GHz (SBR_RX_2G_JSC18_1)
SaberTek <i>New!</i>	PA, 0.7~1GHz (SBR_PA_900M_JSC18_1)
SaberTek <i>New!</i>	PA, 1.7~2.6GHz (SBR_PA_2G_JSC18_1)
SaberTek <i>New!</i>	PA, 0.7~3GHz (SBR_PA_WB_JSC18_1)

CA18/SBC18 – 0.18um Standard Logic / RF/ SiGe

Analog IPs

Vendor	Library
SaberTek <i>New!</i>	VCO, 5.5~7GHz (SBR_VCO_6G_JSC18_1)
SaberTek <i>New!</i>	PFD + CP, 0.01~0.04GHz (SBR_PFDPCP_40M_JSC18_1)
SaberTek <i>New!</i>	PFD + CP, 0.01~0.04GHz (SBR_PFDPCP_40M_JSC18_1)
SaberTek <i>New!</i>	Xtal buffer, 0.01~0.04GHz (SBR_XTLBUF_40M_JSG18_1)
SaberTek <i>New!</i>	Xtal buffer, 0.01~0.04GHz (SBR_XTLBUF_40M_JSG18_2)
SaberTek <i>New!</i>	Sigma-Delta mod, 0.04GHz (SBR_SIGMADEL_40M_JSC18_1)
SaberTek <i>New!</i>	Programmable frequency divider, 2GHz (SBR_FDIV_2G_JSG18_1)
SaberTek <i>New!</i>	Programmable frequency divider, 8GHz (SBR_FDIV_8G_JSG18_1)
SaberTek <i>New!</i>	LPF, DC to 0.75~14MHz (SBR_LPF_7P2Z_14M_JSG18_1)
SaberTek <i>New!</i>	LPF, 1~900MHz (SBR_LPF_900M_JSG18_1)

Analog IPs

Vendor	Library
SaberTek <i>New!</i>	LPF, 1~900MHz (SBR_LPF_900M_JSG18_2)
SaberTek <i>New!</i>	PGA, DC~40MHz (SBR_PGA_40dB_40_JSG18_1)
SaberTek <i>New!</i>	PGA, 1~900MHz (SBR_PGA_30dB_900_JSG18_1)
SaberTek <i>New!</i>	PGA, 1~900MHz (SBR_PGA_30dB_900_JSG18_2)
SaberTek <i>New!</i>	RC calibration, 40MHz (SBR_RCCAL_JSG18_1)
SaberTek <i>New!</i>	Bandgap + Iref (SBR_BG_JSG35_1)
SaberTek <i>New!</i>	Bandgap + Iref (SBR_BG_JSG18_1)
SaberTek <i>New!</i>	Bandgap + Iref (SBR_BG_JSG18_2)
SaberTek <i>New!</i>	LDO (SBR_LDO_40m_JSC18_1)

CA18/SBC18 – 0.18um Standard Logic / RF/ SiGe

Analog IPs

Vendor	Library
Cadence	12 Bit 100 MSPS ADC [AD-0030]
Cadence	10 Bit 300 MSPS DAC [DA-0023]
KT Micro	10 Bit 250 MSPS ADC 90mW [KTAD10200]
KT Micro	10 Bit 400 MSPS ADC [KTAD08400]
KT Micro	10 Bit 100 KSPS ADC [KTAD100011]
KT Micro	10 Bit 240 MSPS DAC [KTDA10240]
KT Micro	SPI Master/Slave [KSPIO40001]
KT Micro	I2C 2-Wire Interface
Tahoe RF	Sigma Delta Modulator [TRFS-261jz]
Tahoe RF	Charge Pump [TRFS-265jz]
Tahoe RF	Phase-Frequency Detector [TRFS-264jz]
Tahoe RF	Ref Divider [TRFS-263jz]

NVM

Vendor	Library
Novocell	NVM SmartBit™ Technology
Jazz	3v, 350mA fuse

SBC18 – 0.18um SiGe

Analog IPs

Vendor	Library
ADSANTEC	Reconfigurable 1:16/1:8 Deserializer [ASNT2012]
ADSANTEC	Reconfigurable 16:1/8:1 Serializer [ASNT1011]
ADSANTEC	1Gbps LVDS/CMOS Converter [ASNT3010]
Jazz	LNA + Mixer Front-End [JZ1C030]
Jazz	RSSI [JZ1DE30]
Jazz	5.2GHz LNA [JAZ10100]
Jazz	IQ Modulator [JZ1EF30]
Jazz	AGC [JZ1EF30]
Jazz	Up-Converter [JZ1EF30]
Jazz	Quad-Current Charge Pump [JZ15X74CP]
Pacific MicroCHIP	30GHz Mixer [PMCC-IRMIX30G]
Pacific MicroCHIP	20-30GHz VCO [PMCC-VCO24]

Analog IPs

Vendor	Library
Pacific MicroCHIP	50GHz Programmable Divider [PMCC-DIV50G1]
Pacific MicroCHIP	35GHz Output Driver [PMCC-OBUF35G]
Tahoe RF	VCO [TRFS-205jz]
Tahoe RF	Mixer (L1 & L2) [TRFS-103jz]
Tahoe RF	Receiver IF VGA [TRFS-158jz]
Tahoe RF	GPS Receiver [TRFS-159jz]
Tahoe RF	2-9GHz VCO [TRFS-206-15jz]
Tahoe RF	RF Divider [TRFS-262jz]

CA13/SBL13 – 0.13um Standard Logic / RF/ SiGe

STD cells

Vendor	Library
Conexant	STD Cell Library A13 1.5V
Conexant	STD Cell Library A13 1.5V HVt
Synopsys	HD STD Cell Library A13LP 1.5V
Synopsys	HD STD Cell Library A13LP 1.5V HVt

Memories

Vendor	Library
Synopsys	SP SRAM 1.5V
Synopsys	DP SRAM 1.5V
Synopsys	DP SRAM HVt 1.5V
Synopsys	Diffusion ROM 1.5V
Synopsys	Diffusion ROM HVt 1.5V
Synopsys	RF-1P/2P 1.5V
Synopsys	RF-1P/2P HVt 1.5V

IO Library

Vendor	Library
Conexant	GPIO Inline Pad Library 3.3v/1.5v A13

CA13/SBL13 – 0.13um Standard Logic / RF/ SiGe

NVM

Vendor	Library
Novocell <i>New!</i>	NVM SmartBit™ Technology

CA25 (3.3V)

STD cells

Vendor	Library
Conexant	STD Cell Library 3.3v

IO Library

Vendor	Library
Conexant	GPIO Inline Pad Library 3.3v-only

CP05, BCD25 (5V)

STD cells

Vendor	Library
Conexant	STD Cell Library 5.0v
Nangate	HD STD Cell Library 5.0v

IO Library

Vendor	Library
Conexant	GPIO Inline Pad Library 5.0v-only

Analog IP

Vendor	Library
KT Micro	Bandgap 1.2V [KTM-0B01]
KT Micro	1W Class-D Audio Amplifier [KAPA00001]
KT Micro	Clock Synthesizer [KTM-0F0801]
Jazz	5v, 350mA fuse

SBC35 – 0.35um SiGe

STD cells

Vendor	Library
Conexant	STD Cell Library 3.3V
Conexant	STD Cell Library 5V

IO Library

Vendor	Library
Conexant	GPIO Inline Pad Library 3.3v-only

SBC35 - 0.35um SiGe

Analog IP

Vendor	Library
Jazz	Bandgap 1.195V [JZ20160]
Jazz	Power-On Reset [JZ21280]
Jazz	7v, 350mA fuse
Jazz	LNA + Mixer [JAZ1CEA0]
Jazz	IF Mixer [JZ1FE70]
Jazz	Limiter/RSSI [JZ1GE70]
Jazz	1.9GHz LNA [JZ10E70]
Jazz	2.7GHz Prescaler [JZ15F80PRS]
Jazz	600MHz Prescaler [JZ25F80PRS]
Jazz	Phase-Frequency Detector [JZ15F80PD]
Jazz	Charge Pump [JZ15X70CP]
Jazz	IQ Modulator [JZ19E70]

Analog IP

Vendor	Library
Jazz	Automatic Power Control (APC) [JZ19E70]
Jazz	Up-Converter [JZ19E70]
Jazz	PA Driver [JZ1DE70]

NVM

Vendor	Library
Jazz	Y-Flash 64 bit module

C05 – 0.5um

STD cells

Vendor	Library
Conexant	STD Cell Library 5V

IO Library

Vendor	Library
Conexant	GPIO Inline Pad Library 5.0v-only

TOWERjazz

www.towerjazz.com