

C H I P S											
Vendor		Family	Floating, Fixed, or Both	Data Width	Core Clock Speed [1]	BDTI [™] mark2000 [™] /BDTIsimMark2000 [™] [2]	BDTI memMark 2000 [™] [3]	Other Benchmark Results Available	Total On-Chip Memory, Bytes	1K Unit Price / 2Q11	Notes
Analog Devices		ADSP-218x	Fixed point	16 bits	80 MHz	240	65		8 K-104 K	\$8-31	Many family members with assorted peripherals
		ADSP-219x	Fixed point	16 bits	160 MHz	410	63		20 K-160 K	\$13-33	Enhanced version of the ADSP-218x
		ADSP-BF5xx (Blackfin)	Fixed point	16 bits	600 MHz	3360 [4,5]	72 [3,4]		52 K-328 K	\$2-48	Dual-MAC DSP with variable speed and voltage
		ADSP-2116x (SHARC)	Both	32/40 bits	110 Mhz	<i>600</i>	34		128 K	\$26-36	SIMD architecture supporting multiprocessor topologies
		ADSP-2126x (SHARC)	Both	32/40 bits	200 MHz	1090	34		512 K-768 K	\$7-25	Features SIMD, strong multiprocessor support
		ADSP-213xx (SHARC)	Both	32/40 bits	400 MHz	2050	34		384 K-1024 K	\$10-43	SHARC with a lengthened pipeline for higher clock speeds
		ADSP-214x (SHARC)	Both	32/40 bits	450 MHz	<i>n/a</i>	<i>n/a</i>		384 K-768 K	\$9-38	Hardware-based filter accelerators, audio-focused peripherals
Freescale		ADSP-TS20x (TigerSHARC)	Both	8/16/32/40 bits	600 MHz	6400 [5]	52 [5]		512 K-3 M	\$184-339	4-way VLIW with SIMD capabilities; uses eDRAM
		B4860 (SC3900)	Fixed point	16 bits	1.2 GHz	<i>37460 [4]</i>	52		9856 K	<i>n/a</i>	Six SC3900 DSP cores, targets base station applications
		DSP563xx/5672x	Fixed point	24 bits	275 MHz	820 [4]	50		<i>n/a</i>	\$5-45	Many audio-oriented parts; binary-compatible with '560xx
		DSP56F8xx (56800)	Fixed point	16 bits	80 MHz [6]	110	78		28 K-152 K	<i>n/a</i>	Contains many microcontroller-like features
		DSP5685x/56F8xxx (56800E)	Fixed point	16 bits	120 MHz	<i>340</i>	79		14 K-612 K	<i>n/a</i>	Enhanced version of the '568xx
		MSC71xx (SC1400 core)	Fixed point	16 bits	300 MHz	<i>3370</i>	67		408 K-472 K	\$37-43	Based on SC1400 licensable core
		MSC81xx (SC140 core)	Fixed point	16 bits	500 MHz	5610 [4]	67 [4]		1440 K	\$57-127	Based on SC140-compatible core; most chips use four cores
		MSC814x (SC3400 core)	Fixed point	16 bits	1 GHz	11900 [4]	67 [4]	OFDM	10.9 M	\$122-147	Based on SC3400 core; quad-core chip
Microchip		MSC815x/825x (SC3850 core)	Fixed point	16 bits	1 GHz	15420 [4]	67 [4]		1728 K-4608 K	\$75-174	Based on SC3850 core; devices with 4 and 6 cores available
		MSC815x/825x (SC3850 core)	Fixed point	16 bits	1.2 Ghz	<i>18500 [4]</i>	67 [4]		<i>n/a</i>	<i>n/a</i>	Higher speed version available only to select customers
NXP		dsPIC3xF	Fixed point	16 bits	60 MHz	<i>190</i>	78		6 K-588 K	\$2-8	Hybrid microcontroller/DSP
PicoChip		TriMedia 3270 core	Both	8/16/32 bits	350 MHz	<i>n/a</i>	<i>n/a</i>	Video Encoder/Decoder	16 M	<i>n/a</i>	VLIW media processor with SIMD capabilities
Texas Instruments		PC102	Fixed point	16 bits	160 MHz	<i>n/a</i>	<i>n/a</i>	OFDM	1 M	\$99	Massively parallel chip with 344 processors
		OMAP35x	Fixed point	8/16/32 bits	720 MHz	<i>5450</i>	78		320 K	\$23-50	Metrics for ARM Cortex-A8 core only (optional 'C64x+ DSP available)
		TMS320 [C/F] 280x/281x/282x	Fixed point	32 bits	150 MHz	<i>n/a</i>	<i>n/a</i>		40 K-582 K	\$3-16	Hybrid microcontroller/DSP; assembly-compatible w/ 'C24x
		TMS320F2802x/2803x	Fixed point	32 bits	60 MHz	<i>n/a</i>	<i>n/a</i>		24 K-150 K	\$2-5	Peripherals and accelerators targeting control applications
		TMS320C54x	Fixed point	16 bits	160 MHz	500 [4]	64 [4]		24 K-336 K	\$3-27	Many specialized instructions
		TMS320C55x	Fixed point	16 bits	300 MHz	1460	75		80 K-376 K	\$4-17	Dual-issue, dual-MAC DSP; assembly-compatible w/ 'C54x
		TMS320C64x	Fixed point	8/16 bits	1 GHz	9130	54	OFDM	160 K-1056 K	\$17-202	Adds quad-MAC capabilities and specialized operations to 'C62x
		TMS320DM6446	Fixed point	8/16 bits	600 MHz	6590	60	H.264 Sol. Benchmark	232 K	\$36	ARM9, C64x+ and video accelerator (BDTI [™] mark2000 for C64x+ only)
		TMS320C64x+	Fixed point	8/16 bits	1.2 GHz	13170	60	OFDM	128 K-3 M	\$10-216	Adds 8-MAC capabilities and specialized operations to 'C64x
		TMS320C66x	Fixed point	16 bits	1.5 GHz	20030 [4]	62 [4]		5M-8M	\$79-399	High performance fixed- and floating-point DSP core
		TMS320C283x/F283x	Floating point	32 bits	300 MHz	<i>n/a</i>	<i>n/a</i>		182 K-582 K	\$9-16	Adds floating-point unit to 'C28x
	TMS320C66x	Floating point	32 bits	1.5 GHz	12860 [4]	42 [4]		5M-8M	\$79-399	High performance fixed- and floating-point DSP core	
	TMS320C67x	Floating point	32 bits	300 MHz	1500	35		72 K-264 K	\$13-31	Floating-point version of 'C62x	
	TMS320C67x+	Floating point	32 bits	300 MHz	<i>n/a</i>	<i>n/a</i>		480 K-672 K	\$7-27	Adds registers and audio-oriented instructions to the 'C67x	
Tilera		TILE64	Fixed point	8/16 bits	866 MHz	<i>n/a</i>	<i>n/a</i>	OFDM	5120 K	\$896	64 core chip, 3-way VLIW with SIMD capabilities

NOTES:

[1] Clock speed is for fastest family member.

[2] The BDTI[™]mark2000 and BDTIsimMark2000 provide summary measures of DSP speed, based on scores on the BDTI DSP Kernel Benchmarks[™]. **Higher is faster**. Both scores are calculated with the same formula, but BDTIsimMark2000 scores may use projected clock speeds. BDTI[™]mark2000 scores are shown in **bold** and BDTIsimMark2000 scores in *italic*. See www.BDTI.com/Resources/BenchmarkResults for more information and scores.

[3] The BDTImemMark provides a summary measure of memory use in signal processing applications; higher is better.

[4] Score for one core. Some family members contain multiple cores. Details available from BDTI.

[5] Score does not apply to some family members, which use slightly different architectures. Details available from BDTI.

[6] The DSP56F8xx requires two clock cycles per instruction cycle.

This processor has BDTI Certified benchmark results available.

CORES											
Licensors	Family	Floating, Fixed, or Both	Data Width	Core Clock Speed [1,2]	BDTImark2000™ / BDTIsimMark2000™ [3]	BDTI memMark 2000™[4]	Other Benchmark Results Available [5]	Total Core Memory Space, Bytes	Die Area [2]	Notes	
ARC	ARC 600/ARC XY	Fixed point	16/32 bits [6]	180 MHz [7]	n/a	n/a		4 G	0.77 mm² [7]	Customizable core with optional DSP features	
	ARC 700/ARC XY	Fixed point	16/32 bits [6]	265 MHz [7]	n/a	n/a		4 G	1.1 mm² [7]	Longer pipeline enables higher clock rate	
ARM	AV 401V	Fixed point	16/32 bits	n/a [8]	n/a	n/a	H.264 Sol. Benchmark	4 G	n/a [8]	Licensable video subsystem based on ARC 700 plus accelerators	
	ARM7	Fixed point	32 bits	145 MHz	160	57		4 G	0.28 mm²	Widely licensed 32-bit microprocessor core	
	ARM9	Fixed point	32 bits	255 MHz	320	74		4 G	n/a	Adds separate bus for data access, deeper pipeline to ARM7	
	ARM9E	Fixed point	16/32 bits	265 MHz	550	72		4 G	1.7 mm²	ARM9 enhanced with single-cycle MAC unit	
	ARM1136	Fixed point	16/32 bits	330 MHz	1160	72		4 G	2.3 mm²	Adds SIMD, load/store unit, branch prediction, deeper pipeline	
	ARM1176	Fixed-point	16/32 bits	335 MHz	1200	72	Video Encoder/Decoder	4 G	2.5 mm²	Very similar to ARM1136	
	Cortex-A8	Fixed point	8/16/32 bits	n/a [8]	7.6 per MHz	78	Video Encoder/Decoder	4 G	n/a [8]	Dual-issue superscalar architecture with NEON DSP extensions	
CEVA	Cortex-R4	Fixed point	16/32 bits	n/a [8]	3.8 per MHz	73		4 G	n/a [8]	Dual-issue superscalar architecture; software compatible with ARM9E	
	CEVA-TeakLite	Fixed point	16 bits	170 MHz	n/a	n/a		256 K	0.4 mm²	Single-MAC, single-issue DSP core	
	CEVA-TeakLite II	Fixed point	16 bits	200 MHz	n/a	n/a		4 M	0.5 mm²	Faster version of CEVA-TeakLite	
	CEVA-TeakLite III	Fixed point	16/32 bits	335 MHz	2140	69		4 G	1.14 mm²	Dual-MAC DSP core; backward compatible with TeakLite II	
	CEVA-Teak	Fixed point	16 bits	150 MHz	n/a	n/a		8 M	0.9 mm²	Dual-MAC DSP core	
Coreworks	CEVA-X1620	Fixed point	8/16 bits	330 MHz	2660	67		4 G	2.6 mm²	8-way VLIW, dual-MAC DSP core	
	CEVA-X1641	Fixed point	8/16 bit	600 MHz	n/a	n/a		4 G	n/a	8-way VLIW, quad-MAC DSP core supporting SIMD operations	
ITRI	Sideworks CWcomp4465	Fixed point	16 bits	209 MHz	2440	48		4G	0.68 mm²	Customized SideWorks DSP engine + FireWorks 32-bit RISC CPU	
MIPS	PAC DSP	Fixed point	8/16/32 bits	n/a [8]	8.8 per MHz	43		4G	n/a [8]	4-way VLIW, quad-MAC DSP core	
Tensilica	MIPS32 24KE (with DSP ASE)	Fixed point	16/32 bits	335 MHz	1000	73		4 G	2.0 mm²	MIPS core with SIMD DSP extensions	
Toshiba	ConnX 545CK	Fixed point	18 bits	245 MHz	4070	69		4 G	5.49 mm²	VLIW-based customizable core; with optional DSP features	
	Venezia (MeP + IVC2)	Fixed point	8/16/32 bits	n/a [8]	7.9 per MHz	69		4G	n/a [8]	MeP core: 32-bit RISC; IVC2 coprocessor: 64-bit SIMD	
VeriSilicon	ZSPneo	Fixed point	16/32 bits	165 MHz	n/a	n/a		256 K	0.45 mm²	Single-MAC, scalar variant of the ZSP400	
	ZSP200	Fixed point	16/32 bits	165 MHz	n/a	n/a		256 K	0.7 mm²	Single-MAC, 2-way superscalar variant of the ZSP400	
	ZSP400	Fixed point	16/32 bits	165 MHz	780	74		256 K	1.3 mm²	Dual-MAC, 4-way superscalar DSP core	
	ZSP410	Fixed point	16/32 bits	185 MHz	870	74		4 G	1.4 mm²	Enhanced ZSP400 with instruction cache	
	ZSP500	Fixed point	16/32 bits	205 MHz	1620	68		64 M	2.2 mm²	Second-generation ZSP; dual-MAC, 4-way superscalar	
	ZSP540	Fixed point	16/32 bits	200 MHz	n/a	n/a		64 M	2.7 mm²	Quad-MAC, 4-way variant of the ZSP500	
	ZSP600	Fixed point	16/32 bits	175 MHz	n/a	n/a		64 M	3.1 mm²	Quad-MAC, 6-way variant of the ZSP500	

FPGAs						
Vendor	Family	Core Clock Speed	BDTI Benchmark Score Available	1K Unit Price 2Q2011	Notes	
Altera	Stratix II EP2S15F672C5	Slow speed grade	OFDM	\$38	FPGA with hardwired DSP features, such as multipliers	
Xilinx	Virtex-4 SX25-10FF668C	Slow speed grade	OFDM	\$89	FPGA with hardwired DSP features, such as multipliers	
	Virtex-4 XC4VFX140-11FF1760C4006	Med. speed grade	OFDM	\$1,280	FPGA with hardwired DSP features, such as multipliers	

Notes:
 [1] Worst-case clock speed.
 [2] All core data is for the TSMC CL013G process and ARM Artisan SAGE-X library (devices with the "BDTI Certified" box checked conform to [3] The BDTImark2000 and BDTIsimMark2000 provide summary measures of DSP speed, based on scores on the BDTI DSP Kernel Benchmarks(tm). **Higher is faster.** Both scores are calculated with the same formula, but BDTIsimMark2000 scores may use projected clock speeds. BDTImark2000 scores are shown in **bold** and BDTIsimMark2000 scores in *italic*. See www.BDTI.com/Resources/BenchmarkResults for more information and scores.

[4] The BDTImemMark provides a summary measure of memory use in signal processing applications; higher is better.
 [5] Additional BDTI Benchmark results available at www.BDTI.Com
 [6] Native multiplier width(s). Users may add custom instructions that support other data widths.
 [7] Assumes use of optional DSP extensions but no other optional features.
 [8] BDTI does not have clock speed and silicon area for this processor based on BDTI's standardized conditions for processor cores.

This processor has BDTI Certified benchmark results available.