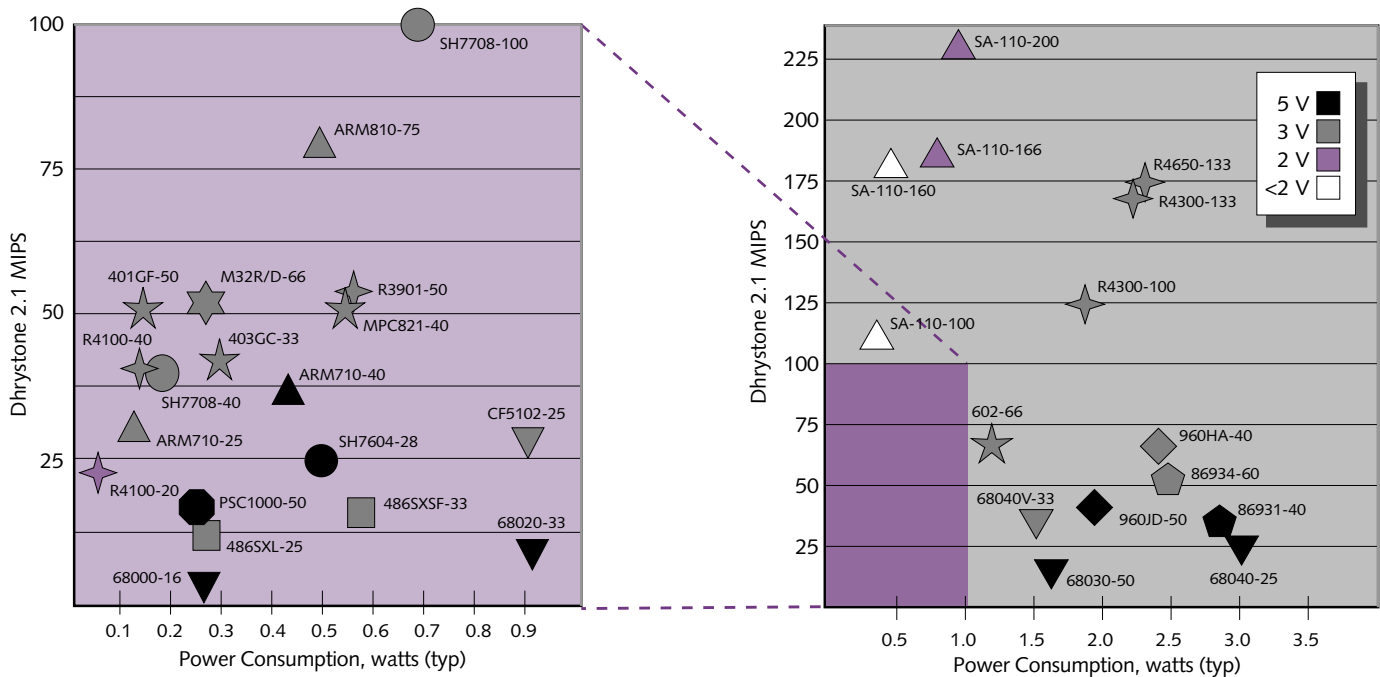
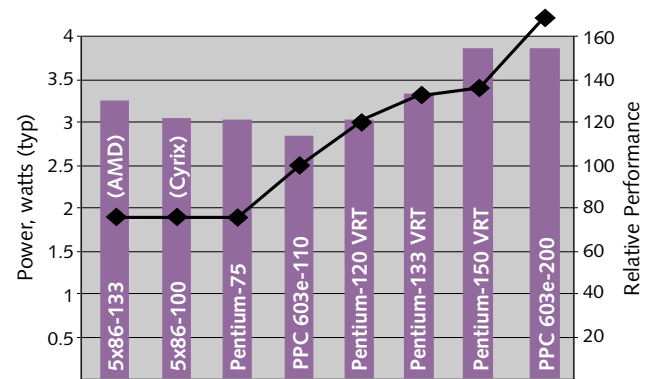


CHART WATCH: MOBILE PROCESSORS



This Chart Watch covers low-power processors for portable and battery-powered systems. The table and the chart in the upper right show the performance/power ratio for a number of embedded CPUs and notebook processors; the chart above is an inset for the lowest power of these processors.

The chart on the right compares x86 and PowerPC processors for notebooks, including relative performance (diamonds) and typical power consumption (bars).



	SA-110	ARM710	SH7604	PPC 401GF	R4100	960SA	CF5102	486SXSf	29040
Vendor	Digital	VLSI	Hitachi	IBM	NEC	Intel	Motorola	Intel	AMD
Clock rate	200 MHz	40 MHz	20 MHz	50 MHz	40 MHz	20 MHz	25 MHz	33 MHz	50 MHz
I/D cache	16K/16K	8K	4K	2K/1K	2K/1K	512/0K	2K/1K	8K	8K/4K
FPU?	No	No	No	No	No	No	No	No	No
MMU?	Yes	Yes	No	No	Yes	No	No	Yes	Yes
Bus width	32 bits	32 bits	32 bits	32 bits	32 bits	16 bits	32 bits	32 bits	32 bits
Bus frequency	66 MHz	40 MHz	20 MHz	50 MHz	20 MHz	20 MHz	25 MHz	33 MHz	25 MHz
MIPS	230 MIPS	36 MIPS	20 MIPS	52 MIPS	40 MIPS*	9 MIPS	27 MIPS	16 MIPS*	67 MIPS
Voltage\$	2.0/3.3 V	5 V	3.3 V	3.3 V	3.3 V	5 V	3.3 V	2.7/3.3 V	3.3 V
Power (typ)	900 mW	424 mW	200 mW	140 mW	120 mW	1,100 mW	900 mW	515 mW	1,650 mW
MIPS/watt	239	85	100	371	333	8	30	31	40
MIPS/mm <sup>2</sup>	4.30	1.04	0.24	2.36	1.60	0.17	n/a	n/a	0.56
Transistors	2,100,000	570,295	450,000	300,000*	450,000	346,000	n/a	n/a	1,200,000
IC process	0.35µ 3M	0.6µ 2M	0.8µ 2M	0.5µ 3M	0.5µ 3M	1.0µ 2M	0.6µ 3M	0.8µ 2M	0.7µ 3M
Die size	50 mm <sup>2</sup>	34 mm <sup>2</sup>	82 mm <sup>2</sup>	22 mm <sup>2</sup>	25 mm <sup>2</sup>	51 mm <sup>2</sup>	n/a	n/a	119 mm <sup>2</sup>
Est mfg cost	\$18*	\$9*	\$7*	\$4*	\$8*	\$4*	\$9*	\$15*	\$20*
Availability	Now	Now	Now	Now	Now	Now	Now	Now	Now
Price (10K)	\$49	\$28	\$27	\$13	\$25†	\$13	\$25*	\$72†	\$86

† list price in 1,000's ‡list price in 100,000's §score/bus voltage n/a: information not available (Source: vendors except \*MDR estimates)