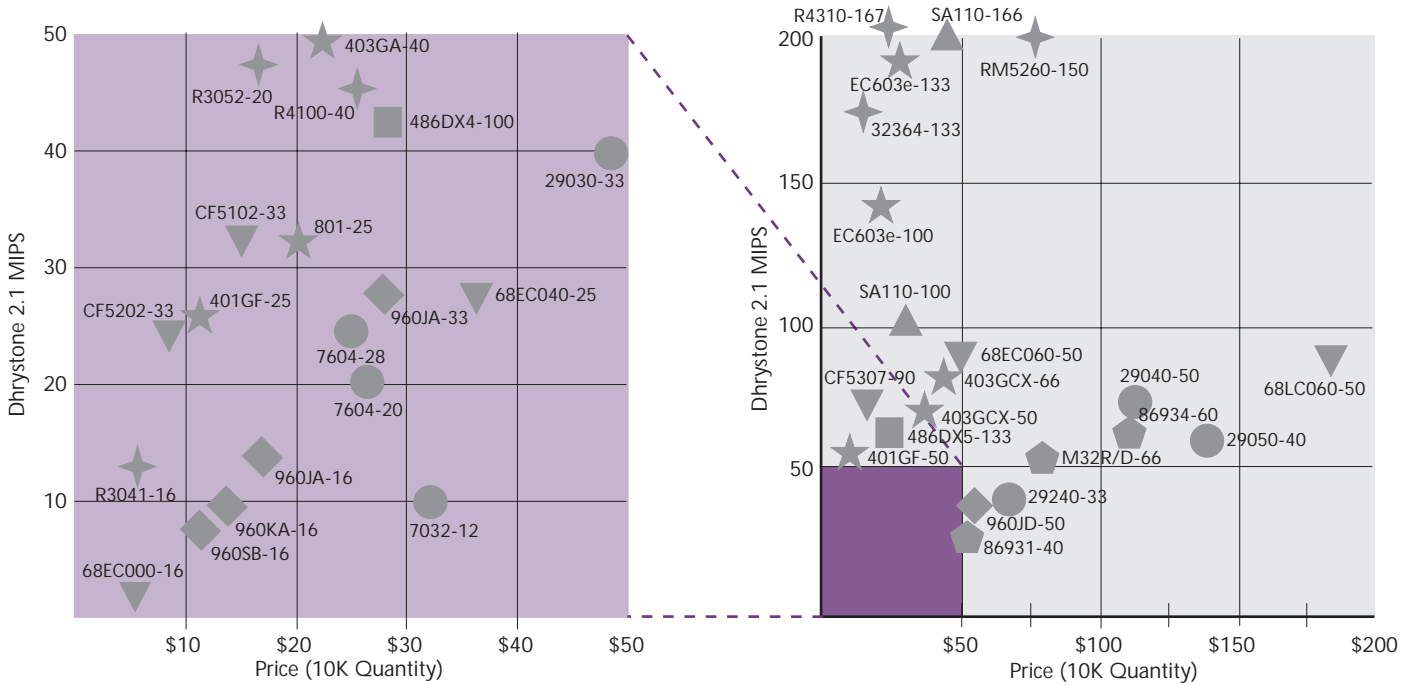
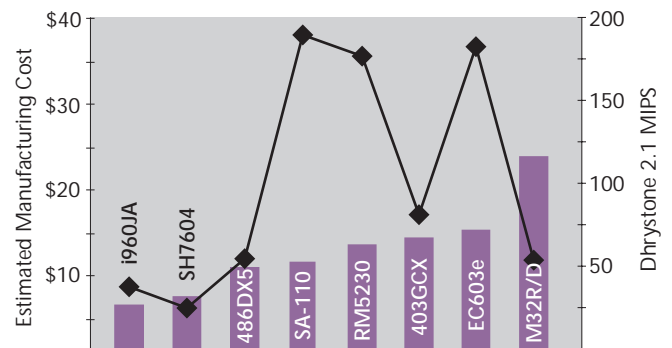


## CHART WATCH: EMBEDDED PROCESSORS



This Chart Watch covers 32- and 64-bit embedded microprocessors, excluding low-power processors. The table below and the chart at the upper right show the performance and price of several embedded CPUs; the chart above is an inset for the lowest-priced products.

The chart on the right compares integer performance (diamonds) and estimated manufacturing costs (bars) for a number of embedded microprocessors according to the MDR Cost Model.



Feature	NEC VR5432	IDT 32364	National 486SXL	AMD 486DX5	Intel 960JT	Motorola CF5307	Motorola EC603e	IBM 403GCX	AMD 29040
Architecture	MIPS	MIPS	x86	x86	i960	ColdFire	PowerPC	PowerPC	29K
Clock rate	167 MHz	133 MHz	25 MHz	133 MHz	100 MHz	90 MHz	200 MHz	66 MHz	50 MHz
I/D cache	32K/32K	8K/2K	1K	16K	16K/4K	8K <sup>†</sup>	16K/16K	16K/8K	8K/4K
FPU?	Yes	No	No	Yes	No	No	No	No	No
MMU?	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes
Bus width	32 bits	32 bits	16 bits	32 bits	32 bits	32 bits	64 bits	32 bits	32 bits
Bus frequency	66 MHz	66 MHz	25 MHz	33 MHz	33 MHz	45 MHz	100 MHz	33 MHz	25 MHz
MIPS	347 MIPS*	175 MIPS	12 MIPS	57 MIPS	80 MIPS*	70 MIPS	282 MIPS	81 MIPS	67 MIPS
Voltage	2.5/3.3 V	3.3 V	5 V	3.3 V	3.3 V	3.3 V	2.5/3.3 V	3.3 V	3.3 V
Power (typ)	2.5 W	0.85 W	0.6 W	2.75 W	1.2 W*	792 mW	3.6 W	0.4 W	1.7 W
MIPS/watt	139	206	20	18	66.6	88.3	78	202	39
MIPS/price	11.6	10.6	0.6	2.12	2.29	4.07	8.32	4.7	0.58
Transistors	5,800,000	1,000,000	350,000*	1,200,000	1,200,000	n/a	2,600,000	1,820,000	1,200,000
IC process	0.25µ 3M	0.35µ 3M	0.65µ 3M	0.35µ 3M	0.35µ 3M	0.35µ 3M	0.35µ 5M	0.45µ 3M	0.7µ 3M
Die size	47 mm <sup>2</sup>	29 mm <sup>2</sup>	n/a	43 mm <sup>2</sup>	89 mm <sup>2</sup>	27 mm <sup>2</sup>	79 mm <sup>2</sup>	47.4 mm <sup>2</sup>	119 mm <sup>2</sup>
Est mfg cost*	NA	\$9	\$8	\$11	\$8	\$8	\$18	\$14	\$20
Availability	Now	Now	Now	Now	Now	Now	Now	Now	Now
Price (10K)	\$30	\$16.50	\$20	\$26.80	\$35	\$17	\$34	\$17	\$115

n/a: information not available

<sup>†</sup>with 4K of SRAM

(Source: vendors except \*MDR estimates)