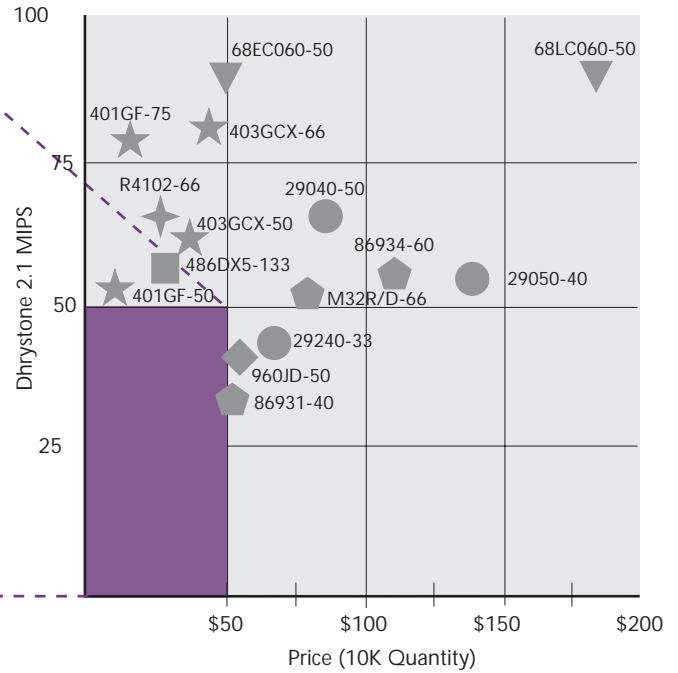
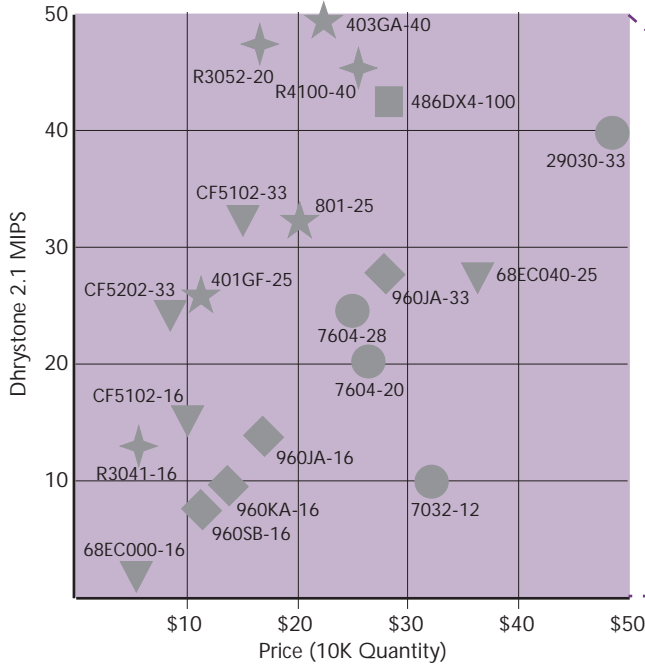
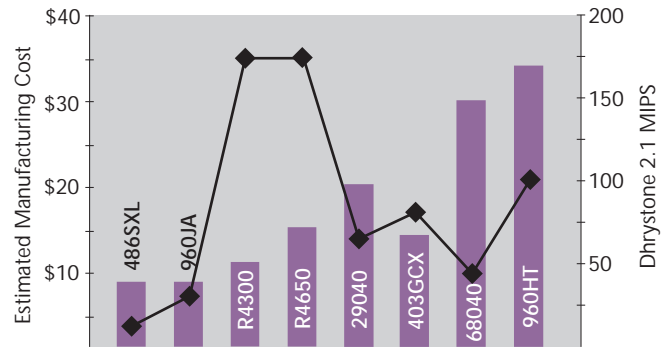


## CHART WATCH: EMBEDDED PROCESSORS



This Chart Watch covers 32-bit and 64-bit embedded microprocessors, excluding low-power processors (see MPR 6/2/97, p. 35). The table below and the chart at the upper right show the price/performance of a number of embedded CPUs; the chart above is an inset for the lowest priced of these processors.

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.



	NEC R4300	IDT RV4640	National 486SXL	AMD 486DX5	Intel 960JA	Motorola 68EC040	Motorola 68EC060	AMD 29040	IBM 403GCX
Architecture	MIPS	MIPS	x86	x86	i960	68K	68K	29K	PowerPC
Clock rate	133 MHz	133 MHz	25 MHz	133 MHz	33 MHz	40 MHz	50 MHz	50 MHz	66 MHz
I/D cache	16K/8K	8K/8K	1K	16K	2K/1K	4K/4K	8K/8K	8K/4K	16K/8K
FPU?	Yes	Yes	No	No	No	No	No	No	No
MMU?	Yes	Yes	No	Yes	No	No	No	Yes	Yes
Bus width	32 bits	32 bits	16 bits	32 bits	32 bits	32 bits	32 bits	32 bits	32 bits
Bus frequency	66 MHz	44 MHz	25 MHz	33 MHz	33 MHz	40 MHz	25 MHz	25 MHz	33 MHz
MIPS	175 MIPS	175 MIPS	12 MIPS	57 MIPS	28 MIPS	44 MIPS	90 MIPS	67 MIPS	81 MIPS
Voltage	3.3 V	3.3 V	5 V	5 V	3.3 V	5 V	3.3 V	3.3 V	3.3 V
Power (typ)	2.2 W	2.1 W	0.6 W	n/a	0.5 W	4.5 W	3.0 W	1.7 W	0.4 W
MIPS/watt	73	81	20	n/a	56	10	30	39	194
MIPS/price	5.00	5.83	0.8	1.90	0.76	0.66	1.76	0.78	1.83
Transistors	1,700,000	1,050,000	350,000*	n/a	750,000	1,170,000	2,130,000	1,200,000	1,820,000
IC process	0.35μ 3M	0.6μ 3M	0.65μ 3M	0.35μ 3M	0.8μ 3M	0.65μ 3M	0.42μ 3M	0.7μ 3M	0.45μ 3M
Die size	45 mm <sup>2</sup>	56 mm <sup>2</sup>	n/a	43 mm <sup>2</sup>	64 mm <sup>2</sup>	163 mm <sup>2</sup>	103 mm <sup>2</sup>	119 mm <sup>2</sup>	n/a
Est mfg cost*	\$11	\$15	\$8	\$11	\$8	\$30	\$43	\$20	\$14
Availability	Now	Now	Now	Now	Now	Now	Now	Now	Now
Price (10,000s)	\$32	\$30	\$15	\$30	\$37	\$67	\$51	\$86	\$45

n/a: information not available

(Source: vendors except \*MDR estimates)