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68040, PowerPC 601: Integrated FPU Is IEEE 754 Compliant (12/93)

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TOPIC -----

The U.S. federal government specification for personal computer purchases requires an FPU that is "IEEE 754 compliant, with precision ranging at least 10E+38 and 10E-38 (8 significant digits) to at least 10E+308 and 10E-308 (16 significant digits)."

Does the 68040's FPU meet this specification? Will PowerPC 601?

DISCUSSION -----

Both the MC68040 and the PowerPC 601 microprocessors are fully compliant with IEEE 754 floating-point standards. The following tables show the approximate precision ranges for the two processors:

Single-Precision Real Format

Maximum Positive Normalized	3.4 x 10E38
Minimum Positive Normalized	1.2 x 10E-38
Minimum Positive Denormalized	1.4 x 10E-45

Double-Precision Real Format

Maximum Positive Normalized	1.8 x 10E308
Minimum Positive Normalized	2.2 x 10E-308
Minimum Positive Denormalized	4.9 x 10E-324

Extended-Precision Real Format

Maximum Positive Normalized	1.2 x 10E4932
Minimum Positive Normalized	1.7 x 10E-4932
Minimum Positive Denormalized	3.7 x 10E-4951

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