

Functional Units and operations

Functional Unit	Fixed-Point Operations	Floating-Point Operations
<u>.L unit (.L1, .L2)</u>	32/40-bit <u>arithmetic</u> and compare operations 32-bit <u>logical</u> operations Leftmost 1 or 0 counting for 32 bits Normalization count for 32 and 40 bits	Arithmetic operations DP \rightarrow SP, INT \rightarrow DP, INT \rightarrow SP conversion operations
.S unit (.S1, .S2)	32-bit arithmetic operations 32/40-bit shifts and 32-bit bit-field operations 32-bit logical operations Branches Constant generation Register transfers to/from control register file (.S2 only)	Compare Reciprocal and reciprocal square-root operations Absolute value operations SP \rightarrow DP conversion operations SP and DP adds and subtracts SP and DP reverse subtracts (src2 - src1)
.M unit (.M1, .M2)	16 \times 16-bit multiply operations 32 \times 32-bit multiply operations	Floating-point multiply operations Mixed-precision multiply operations
.D unit (.D1, .D2)	32-bit add, subtract, linear and circular address calculation Loads and stores with 5-bit constant offset Loads and stores with 15-bit constant offset (.D2 only)	Load doubleword with 5-bit constant offset

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