

## Addressing Method Codes

- A** Direct address. The instruction has no ModR/M byte; the address of the operand is encoded in the instruction; and no base register, index register, or scaling factor can be applied (for example, far JMP (EA)).
- C** The reg field of the ModR/M byte selects a control register (for example, MOV (0F20, 0F22)).
- D** The reg field of the ModR/M byte selects a debug register (for example, MOV (0F21,0F23)).
- E** A ModR/M byte follows the opcode and specifies the operand. The operand is either a general-purpose register or a memory address. If it is a memory address, the address is computed from a segment register and any of the following values: a base register, an index register, a scaling factor, a displacement.
- F** EFLAGS Register.
- G** The reg field of the ModR/M byte selects a general register (for example, AX (000)).
- I** Immediate data. The operand value is encoded in subsequent bytes of the instruction.
- J** The instruction contains a relative offset to be added to the instruction pointer register (for example, JMP (0E9), LOOP).
- M** The ModR/M byte may refer only to memory (for example, BOUND, LES, LDS, LSS, LFS, LGS, CMPXCHG8B).
- O** The instruction has no ModR/M byte; the offset of the operand is coded as a word or double word (depending on address size attribute) in the instruction. No base register, index register, or scaling factor can be applied (for example, MOV (A0–A3)).
- P** The reg field of the ModR/M byte selects a packed quadword MMX™ technology register.

**Q** A ModR/M byte follows the opcode and specifies the operand. The operand is either an MMX™ technology register or a memory address. If it is a memory address, the address is computed from a segment register and any of the following values: a base register, an index register, a scaling factor, and a displacement.

**R** The mod field of the ModR/M byte may refer only to a general register (for example, MOV (0F20-0F24, 0F26)).

**S** The reg field of the ModR/M byte selects a segment register (for example, MOV (8C,8E)).

**T** The reg field of the ModR/M byte selects a test register (for example, MOV (0F24,0F26)).

**V** The reg field of the ModR/M byte selects a packed SIMD floating-point register.

**W** An ModR/M byte follows the opcode and specifies the operand. The operand is either a SIMD floating-point register or a memory address. If it is a memory address, the address is computed from a segment register and any of the following values: a base register, an index register, a scaling factor, and a displacement

**X** Memory addressed by the DS:SI register pair (for example, MOVS, CMPS, OUTS, or LODS).

**Y** Memory addressed by the ES:DI register pair (for example, MOVS, CMPS, INS, STOS, or SCAS).

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## Operand Type Codes

**a** Two one-word operands in memory or two double-word operands in memory, depending on operand-size attribute (used only by the BOUND instruction).

**b** Byte, regardless of operand-size attribute.

**C** Byte or word, depending on operand-size attribute.

**d** Doubleword, regardless of operand-size attribute

**dq** Double-quadword, regardless of operand-size attribute.

**p** 32-bit or 48-bit pointer, depending on operand-size attribute.

**pi** Quadword MMX™ technology register (e.g. mm0)

**ps** 128-bit packed FP single-precision data.

**q** Quadword, regardless of operand-size attribute.

**s** 6-byte pseudo-descriptor.

**ss** Scalar element of a 128-bit packed FP single-precision data.

**si** Doubleword integer register (e.g., eax)

**v** Word or doubleword, depending on operand-size attribute.

**w** Word, regardless of operand-size attribute.