ADDRESING MODES OF 8086

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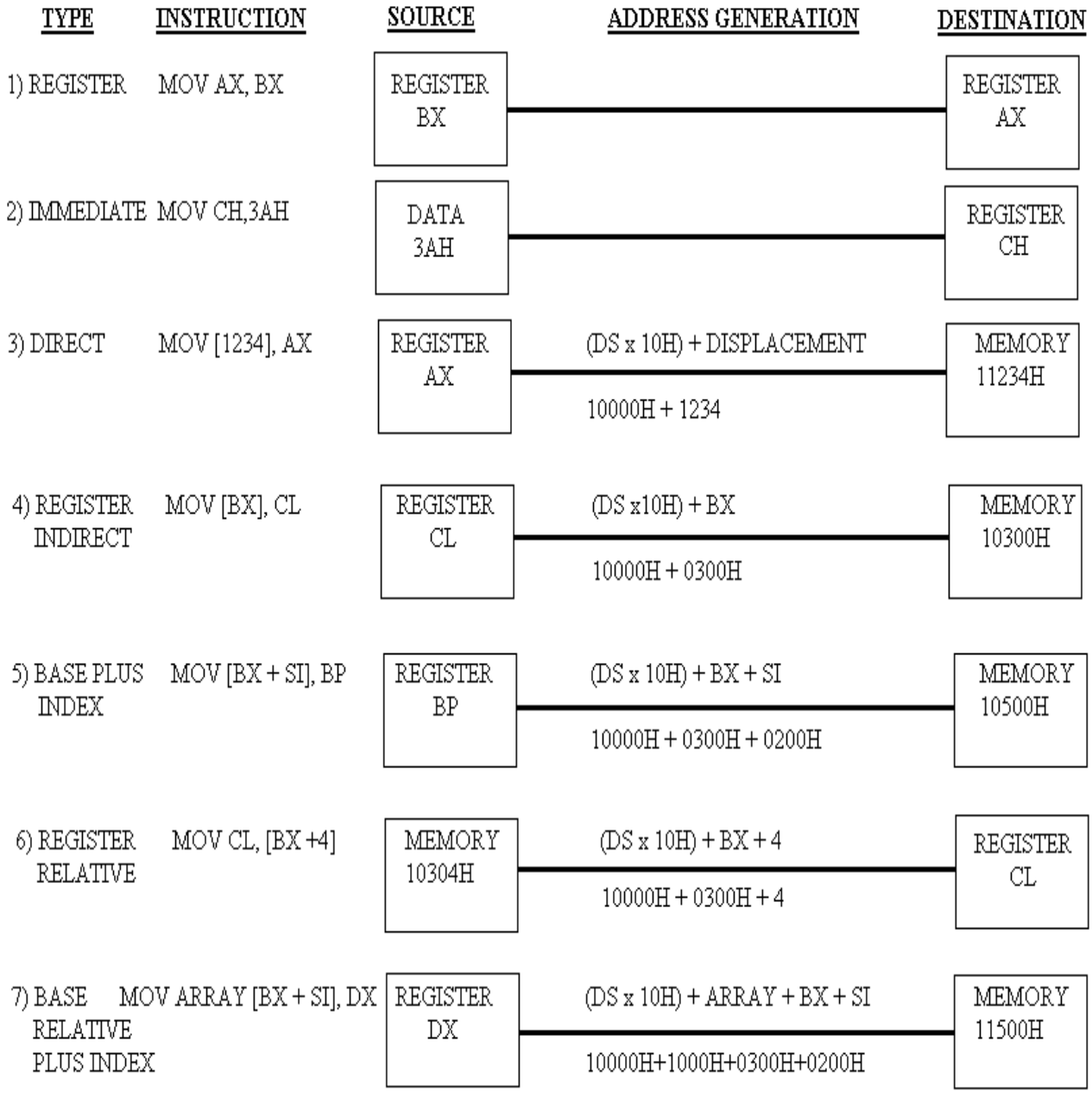
ABSTRACT :- The 8086 is a 16-bit microprocessor chip designed by Intel between early 1976 and mid-1978, when it was released. The intel 8088 released in 1979, was a slightly modified chip with an external 8-bit data bus (allowing use of cheaper and fewer supporting), and is notable as the processor used in the original IBM PC design, including the widespread version called IBM PC XT. The 8086 gave rise to the x86 architecture which eventually turned out as Intel's most successful line of processors.

I. INTRODUCTION

The 80x86 processors let you access memory in many different ways. The 80x86 memory addressing modes provide flexible access to memory, allowing you to easily access variables, arrays, records , pointers, and other complex data types. Mastery of the 80x86 addressing modes is the first step towards mastering 80x86 assembly language.When Intel designed the original 8086 processor , they provided it with a flexible , though limited, set of memory addressing modes. Intel added several new addressing modes when it introduced the 80386 microprocessor. Note that the 80286 retained all the modes of the previous processors; the new modes are just an added bonus. If you need to write code that works on 80286 and earlier processors, you will not able to take advantage of these new modes. However, if you intend to run your code on on 80386x or higher processors, you can use these new modes. Since many programmers still need to write programs that run on 80286 and earlier Machines,programs that run on 80286 and earlier machines, it's important to separate the discussion of these two sets of addressing modes to avoid confusing

8086 ADDRESS MODES



ASSUME: BX = 0300H; SI = 0200H; ARRAY = 1000H; DS = 1000H.

Addresing Modes Of 8086

*Implied – the data value/data address is implicitly associated with the instruction.

*Register - references the data in a register or in a register pair.

*Immediate - the data is provided in the instruction.

*Direct - the instruction operand specifies the memory address where data is located.

* Register indirect - instruction specifies a register containing an address, where data is located. This addressing mode works with SI, DI, BX and BP registers.

* Based - 8-bit or 16-bit instruction operand is added to the contents of an index register (SI or DI), the resulting value is a pointer to location where data resides.

* Based Indexed - the contents of a base register (BX or BP) is added to the contents an index register (SI or DI), the resulting value is a pointer to location where data resides.

II. RESULT

The effective address is the final offset produced by an addressing mode computation. For example, if bx contains 10h, the effective address for 10h[bx] is 20h. You will see the term effective address in almost any discussion of the 8086's addressing mode. There is even a special instruction load effective address (lea) that computes effective addresses.

III. CONCLUSION

The displacement field in all addressing modes except displacement-only can be a signed eight bit constant or a signed 16 bit constant. If your offset is in the range -128...+127 the instruction will be shorter (and therefore faster) than an instruction with a displacement outside that range. The size of the value in the register does not affect theexecution time or size. So if you can arrange to put a large number in the register(s) and use a small displacement, that is preferable over a large constant and small values in the register(s).

REFRENCES

INTERNET AND MICROPROCESSOR AND INTERFACING BY RAMESH S GAONKAR