



INSTRUCTION SET OF PIC

Instruction Set in PIC16Cxx MC Family • Complete set: 35 instructions. • MC Architecture: RISC microcontroller. • Instruction

Types: 1. Data Processing Operations:

- Copy data between registers.
- Manipulate data in a single register.
- Arithmetic operations.
- Logic operations.

2. Program Sequence Control Operations:

- Unconditional Jump.
- Conditional Jump.
- Call.
- Control



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Word list f any memory location in a microcontroller W work register b bit position in 'f' register d destination bit label group of eight characters which marks the beginning of a part of the program TOS top of stack [] option < > bit position inside register.

Data transfer Transfer of data in a MC is done between W register and an 'f' register. These instructions provide for: - a constant being written in W register (MOVLW) - data to be copied from W register onto RAM. - data from RAM to be copied onto W register (or on the same RAM location, at which point only the status of Z flag changes). - Instruction CLRF writes constant 0 in 'f' register, - Instruction CLRW writes constant 0 in register W. - SWAPF instruction exchanges places of the 4-bit nibbles field inside a register.



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Arithmetic and logic PIC like most MCs supports only subtraction and addition. Flags C, DC and Z are set depending on a result of addition or subtraction. Logic unit performs AND, OR, EX-OR, complement (COMF) and rotation (RLF & RRF). Bit operations Instructions BCF and BSF do setting or cleaning of one bit anywhere in the memory. The CPU first reads the whole byte, changes one bit in it and then writes in the entire byte at the same place



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Directing a program flow • Instructions GOTO, CALL and RETURN are executed the same way as on all other microcontrollers, only stack is independent of internal RAM and limited to eight levels. • 'RETLW k' instruction is identical with RETURN instruction, except that before coming back from a subprogram a constant defined by instruction operand is written in W register.