

MICROPROCESSOR GLOSSARY

ACCUMULATOR The register where arithmetic or logic results are held. Most MPU instructions manipulate or test the accumulator contents.

ACCESS TIME: Time take for specific byte of storage to become available to processor

ACIA Asynchronous Communication Inter-face Adapter Inter-face between asynchronous peripheral and an MPU

ALU Arithmetic and Logic Unit. The part of the MPU where arithmetic and logic functions are performed.

ASCII American Standard Code for Information Interchange Binary code to represent alphanumeric, special and control characters.

ASSEMBLER Software which converts assembly language statements into machine code and checks for non valid statements or incomplete definitions.

ASSEMBLY LANG Means of representing programme statements in mnemonics and conveniently handling memory addressing by use of symbolic terms

ASYNCHRONOUS: Operations that initiate a new operation immediately upon completion of current one -- not timed by system clock

BASIC Beginner's All Purpose Symbolic Instruction Code. An easy to learn, widely used high level language.

BAUD Measure of speed of transmission line Number of times a line changes state per second Equal to bits per second if each line state represents logic 0 or 1.

BAUDOT CODE 5-bit code used to encode alphanumeric data

BCD Binary Coded Decimal. Means of representing decimal numbers where each figure is replaced by a binary equivalent.

BENCHMARK A common task for the implementation of which programmes can be written for different MPUs in order to determine the efficiency of the different MPUs in the particular application

BINARY The two base number system The digits are 0 or 1 They are used inside a computer to represent the two states of an electric circuit.

BIT: A single binary digit

BREAKPOINT Program address at which execution will be halted to allow debugging or data entry

BUFFER: Circuit to provide isolation between sensitive parts of a system and the rest of that system.

BUG: A program error that causes the program to malfunction.

BUS The interconnections in a system that carry parallel binary data. Several bus users are connected to the bus, but generally only one "sender" and one "receiver" are active at any one instant.

BYTE A group of bits - the most common byte size is eight bits.

CLOCK: The basic timing for a MPU chip.

COMPILER: Software which converts high level language statements into either assembly language statements, or into machine code

CPU Central processor unit. The part of a system which performs calculation and data manipulation functions

CROM Control Read Only Memory

CRT Cathode Ray Tube. Often taken to mean complete output device.

CUTS Computer Users Tape System. Definition of system for storing data on cassette tape as series of tones to represent binary 1's and 0's

DEBUG The process of checking and correcting any program errors either in writing or in actual function.

DIRECT ADDRESSING An addressing mode where the address of the operand is contained in the instruction

DMA Direct Memory Access.

DUPLEX: Transfer of data in two directions simultaneously

ENVIRONMENT The conditions of all registers, flags, etc., at any instant in program

EPROM Electrically Programmable Read Only Memory Memory that may be erased (usually by ultra violet light) and reprogrammed electrically.

EXECUIE To perform a sequence of program steps

EXECUTION TIME. The time taken to perform an instruction in terms of clock cycles.

FIRMWARE Instructions or data permanently stored in ROM

FLAG A flip flop that may be set or reset under software control

FLIP-FLOP Two state device that changes state when clocked

FLOPPY (DISK): Mass storage which makes use of flexible disks made of a material similar to magnetic tape

FLOW CHART A diagram representing the logic of a computer program

GLITCH Noise pulse.

HALF DUPLEX: Data transfer in two directions but only one way at a time.

HAND SHAKE System of data transfer between CPU and peripheral whereby CPU "asks" peripheral if it will accept data and only transfers data if "answer" is yes

HARD COPY: System output that is printed on paper.

HARDWARE All the electronic and mechanical components making up a system.

HARD WIRE: Circuits that are comprised of logic gates wired together, the wiring pattern determining the overall logic operation.

HASH Noisy signal.

HEXADECIMAL The base 16 number system. Character set is decimal 0 to 9 and letters A to F

HIGH LEVEL LANGUAGE: Computer language that is easy to use, but which requires compiling into machine code before it can be used by an MPU.

HIGHWAY: As BUS

IMMEDIATE ADDRESSING Addressing mode which uses part of the instruction itself as the operand data

INDEXED ADDRESSING. A form of indirect addressing which uses an Index Register to hold the address of the operand

INDIRECT ADDRESSING Addressing mode where the address of the location where the address of the operand may be found is contained in the instruction

INITIALISE Set up all registers, flag, etc., to defined conditions

INSTRUCTION Bit pattern which must be supplied to an MPU to cause it to perform a particular function

INSTRUCTION REGISTER MPU register which is used to hold instructions fetched from memory

INSTRUCTION SET The repertoire of instructions that a given MPU can perform.

INTERFACE Circuit which connects different parts of system together and performs any processing of signals in order to make transfer possible (ie, serial - parallel conversion)

INTERPRETER: An interpreter is a software routine which accepts and executes a high level language program, but unlike a compiler does not produce intermediate machine code listing but converts each instruction as received.

INTERRUPT A signal to the MPU which will cause it to change from its present task to another

I/O Input/Output

K: Abbreviation for $2^{10} = 1028$.

KANSAS CITY (Format): Definition of a CUTS based cassette interface system.

LANGUAGE A systematic means of communicating with an MPU

LATCH Retains previous input state until overwritten

LIFO: Last In First Out Used to describe data stack

LOOPING Program technique where one section of program (the loop) is performed many times over.

MACHINE LANG The lowest level of program. The only language an MPU can understand without interpreter

MASK Bit pattern used in conjunction with a logic operation to select a particular bit or bits from machine word

MEMORY The part of a system which stores data (working data or instruction object code).

MEMORY MAP Chart showing the memory allocation of a system.

MEMORY MAPPED I/O: A technique of implementing I/O facilities by addressing I/O ports as if they were memory locations.

MICRO CYCLE Single program step in an MPUS

Micro program The smallest level of machine program step

MICRO PROCESSOR: A CPU implemented by use of large scale integrated circuits. Frequently implemented on a single chip.

MICRO PROGRAM Program inside MPU which controls the MPU chip during its basic fetch/execute sequence.

MNEMONIC A word or phrase which stands for another (longer) phrase and is easier to remember.

MODEM Modulator/demodulator used to send and receive serial data over an audio link.

NON VOLATIVE: Memory which will retain data content after power supply is removed, e.g. ROM.

OBJECT CODE: To bit patterns that are presented to the MPU as instructions and data.

O/C Open Collector Means of tying together O/P's from different devices on the same bus.

OCTAL Base 8 number system. Character set is decimal 0-8

OP CODE Operation Code. A bit pattern which specifies a machine operation in the CPU.

OPERAND Data used by machine operations.

PARALLEL: Transfer of two or more bits at the same time.

PARITY Check bit added to data, can be odd or even parity In odd parity sum of data 1's + parity bit is odd.

PERIPHERAL Equipment for inputting to or outputting from the system (e.g. teletype, VDU, etc.)

PIA Peripheral Interface Adapter

POP: Operation of removing data word from LIFO stack.

PORT A terminal which the MPU uses to communicate with the outside world.

PROGRAMS Set of MPU instructions which instruct the MPU to carry out a particular task.

PROGRAM COUNTER. Register which holds the address of next instruction (or data word) of the program being executed.

PROM: Programmable read only memory. Proms are special form of ROM, which can be individually programmed by user

PUSH: Operation of putting data to LIFO stack.

RAM Random Access Memory. Read write memory. Data may be written to or read from any location in this type of memory

REGISTER General purpose MPU storage location that will hold one MPU word

RELATIVE ADDRESSING: Mode of addressing whereby address of operand is formed by combining current program count with a displacement value which is part of the instruction.

ROM: Read Only Memory. Memory device which has its data content established as part of manufacture and cannot be changed.

SCRATCH PAD: Memory that has short access time and is used by system for short term data storage.

SERIAL: Transfer of data one bit at a time.

SIMPLEX Data transmission in one direction only.

SOFTWARE Programs stored on any media.

SOURCE CODE: The list of statements that make up a program

STACK: A last in first out store made up of registers or memory locations used for stack

STATUS REGISTER Register that is used to store the condition of the accumulator after an instruction has been performed (e.g., Acc = 0)

SUB ROUTINE: A sequence of instructions which perform an often required function, which can be called from any point in the main program.

SYNTAX The grammar of a programming language

TRAP (Vector). Pre-defined location in memory which the processor will read as a result of particular condition or operation

TRI STATE Description of logic devices whose outputs may be disabled by placing them in a high impedance state.

TTY Teletype

TWO'S COMPLEMENT ARITHMETIC: System of performing signed arithmetic with binary numbers.

UART Universal Asynchronous Receiver Transmitter

VDU Video Display Unit

VECTOR Memory address, provided to the processor to direct it to a new area in memory

VOLATILE Memory devices that will lose data content if power supply removed (e.g., RAM).

WORD Parallel collection of binary digits such as byte