

INTEL COMPUTER WORKSHOPS

MICROCOMPUTER

Two and three day workshops for hands-on programming with the MCS-4 and MCS-8 microcomputers, and the new PL/M high level microcomputer language.

MCS-4: October 1-3
 November 5-7
 December 3-5
 MCS-8: November 4-5
 December 8-9
 November 12-13
 December 6-7
 October 10-11
 November 14-15
 December 12-13
 PL/M: October 14-15
 November 10-11
 December 12-13

Intel Microcomputer Workshop
 Compata Inc.
 460 California Ave.
 Palo Alto, California 94306

First Class Mail
 U.S. Postage
 PAID 8¢
 Permit #317
 Menlo Park, Ca.

INTEL MICROCOMPUTER WORKSHOP

Microcomputer Programming

Intel, the inventor of the microcomputer, wants to help you to become a microcomputer expert. To do this, we will share our expertise with you in small workshop sessions that will give you the tools to build systems quickly and inexpensively.

Workshop Objectives

These microcomputer workshops have been designed by Intel to give you the tools and expertise for making maximum use of microcomputers in your products. Learn the most powerful and latest programming methods, such as PL/M high level language for 8-bit microcomputers, and how to use available microcomputer hardware and software aids. Small groups. Thoroughly planned lessons. Actual hands-on equipment experience.

Attendance

Workshops are open to managers, engineers, programmers, technicians, and others desiring to learn how to develop programs for MCS-4 and MCS-8 microcomputer programs.

Attendance is limited to 16 attendees per workshop session. Applications will be honored on a first come-first served basis.

Closed workshops at your selected location may be scheduled upon request.

Prerequisites

Although no direct programming experience is required, maximum benefit requires a basic understanding of programming fundamentals. Binary, octal and hexadecimal numbering systems, programming loops, and subroutines, etc. The PL/M workshop requires in addition a general understanding of higher level programming languages such as Fortran IV or PL/I, and a familiarity with the Intel MCS-8 Microcomputer System.

Tuition

The fee includes all materials, texts, computer time, and luncheons. MCS-4 \$350. MCS-8 \$250. PL/M \$300.

Enrollment

Complete, sign and return the attached application form, or call (415) 327-7174.

Submit your application promptly to ensure your reservation and to allow time to receive and review the pre-workshop packet.

Instructors

The microcomputer workshop sessions will be conducted by Compata Incorporated. The instructors will be:

Manuel R. Lemas

Mr. Lemas is a staff consultant with Compata Incorporated. Previous employment includes IBM, General Electric, and Northrop Aircraft. Mr. Lemas has sixteen years in the programming field with experience in design and implementation of system software, operating systems, test and diagnostics, design automation, numerical control, and simulation programs. Responsibilities have included project engineer and programming management. Computer experience includes the IBM 360, GE 304, GE 600 series, IBM 704, 797 and 604, UNIVAC 1103, Westinghouse 2500, Varian 620, LSI microcomputers, and all related lab equipment.

Mr. Lemas received a BS degree in Mathematics from Arizona State University in 1961 and is attending the Graduate School of Business at the University of Santa Clara. He is a member of the Association for Computing Machinery.

Raymond M. Holt

Mr. Holt is a computer systems consultant with Compata Incorporated. Previous experience includes five years in the design, development and implementation of MOS-LSI microcomputers including system analysis, architectural studies, logic design, chip partitioning, software development, microprogramming, and prototype development and checkout. Previous affiliations include American Microsystems and Garrett Airesearch Corporation.

Mr. Holt received a BS degree in Electronic Engineering from Cal Poly University at Pomona in 1968. He has completed graduate courses in computer design at the University of Southern California and is participating in the Computer Science Masters Degree program at the University of Santa Clara. He has published a number of papers on the subject of microcomputers, and is a member of the IEEE, and the ACM.



MCS-4 WORKSHOP

MCS-4 Workshop

Course Objective – To identify and teach the steps required for developing Intel MCS-4, four-bit microcomputer programs. Provide hands-on equipment experience with hardware and a review of software aids.

MCS-4 Agenda: Day 1

Morning

- Lecture: A. Introduction to MCS-4
Block Diagram
System Timing
SIM 4 Hardware Introduction
B. MCS-4 Basic Instruction Set

Afternoon

- Lecture: The Hardware Assembler
Syntax
Input Formats
Output Formats
- Lab: A. Operating the MCS-4 System
Configuring and Cold Start
PROM Programming
Erasing, Programming
Error Correcting, Listing
B. Familiarization Checklist
Exercise

MCS-4 Agenda: Day 2

Morning

- Lecture: A. Hardware Simulator
B. PA4-04 Program Analyzer

- Lab: A. Running the Hardware Assembler
Configuration
Punching Source
Loading
Punching Object
B. Familiarization Checklist
Exercise

Afternoon

- Lecture: Programming the MCS-4
Coding and Desk Debugging
of Programs to be PROMed
and Executed
- Lab: A. Running the Hardware Simulator
B. Familiarization Checklist
Exercise

MCS-4 Agenda: Day 3

Morning

- Lecture: Additional System Development
Aids
Program Library
Cross Assembler
Instruction Simulator
- Lab: Program Debugging Using the
PA4-04 Program Analyzer

Afternoon

- Lecture: Review of Selected Applications
- Lab: Problem to PROM:
Assembling, Debugging, PROM
Programming and Executing
Programs from PROM

Close, Critique

MCS-8 WORKSHOP

MCS-8 Workshop

Course Objective – To identify and teach the steps required for developing Intel MCS-8, eight-bit microcomputer programs. Provide hands-on equipment experience with hardware and a review of software aids.

MCS-8 Agenda: Day 1

Morning

- Lecture: A. SIM 8 Hardware Introduction
Interrupts, Startup, System
Timing
- B. MCS-8 Basic Instruction Set
- Lab: A. Operating the MCS-8 System
Configuring and Cold Start
Memory Loader Control
Programs
Loading, Listing, Executing,
Etc.
Single Stepping ROM, RAM
- B. Familiarization Checklist
Exercising the PROM Control
Program

Afternoon

- Lecture: The Hardware Assembler
Memory Requirements
Syntax
Input Formats
Output Formats
- Lab: A. PROM Programming
Erasing, Programming, List-
ing, Debugging, Executing
- B. Familiarization Checklist
Exercising PROM Programming

PL/M WORKSHOP

MCS-8 Agenda: Day 2

Morning

Lecture: Programming the MCS-8
Coding and Desk Debugging
Programs to be PROMed
and Executed
Review of Selected Existing
Programs for Techniques

Lab: A. Running the Hardware Assembler
Configuration
Punching Source
Loading
Punching Object
B. Familiarization Checklist
Exercising the Hardware
Assembler

Afternoon

Lecture: Additional System Development Aids
Program Library
Cross Assembler
Instruction Simulator

Lab: Problem to PROM Exercise
Assembling, Debugging,
PROM
Programming and Executing
Programs from PROM

Course Critique, Close

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delivers.**

Intel Microcomputer Systems Group

PL/M Workshop

Course Objective – To teach the elements of writing and debugging PL/M programs. Provide hands-on experience using PL/M interactively from a time-shared computer terminal.

PL/M Agenda: Day 1

Morning
Lecture: Introduction to PL/M
Expressions and Assignments
DO Loops
Arrays
PL/M Programming Exercises

Afternoon
Lab: Using the Timesharing Terminal
Logging On
Creating Source Data Sets
Running the PL/M Compiler
Logging Off
PL/M Compiler Output
Compiler Run Parameters and
Toggles
Debugging PL/M Programs
using the INTERP 8
Simulator

PL/M Agenda: Day 2

Morning
Lecture: Procedure definitions and Calls
Based Variables
Statement Labels and GOTOS
Predefined Variables and
Procedures

Afternoon
Lab: PL/M Programming Exercises
Compiling, Debugging and
Simulating Exercise Programs

Course Critique, Close

The right to cancel scheduled workshops and amend sessions agenda is reserved.

I wish to attend the following sessions:

MCS-4 \$350

Oct. 1-3 Nov. 5-7 Dec. 3-5

MCS-8 \$250

Oct. 4-5 Nov. 8-9 Dec. 6-7
 Oct. 8-9 Nov. 12-13 Dec. 10-11

PL/M \$300

Oct. 10-11 Nov. 14-15 Dec. 12-13

Name _____ Title _____

Company _____ Phone _____

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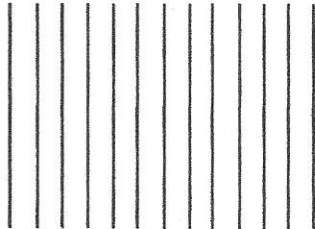
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Intel reserves the right to cancel workshops and amend session agenda

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