Options 1.3

Contents

Introduction

The basic configuration of the F1 can be altered by the addition of various options to reflect the differing requirements of the user. These can be broken down into the following categories.

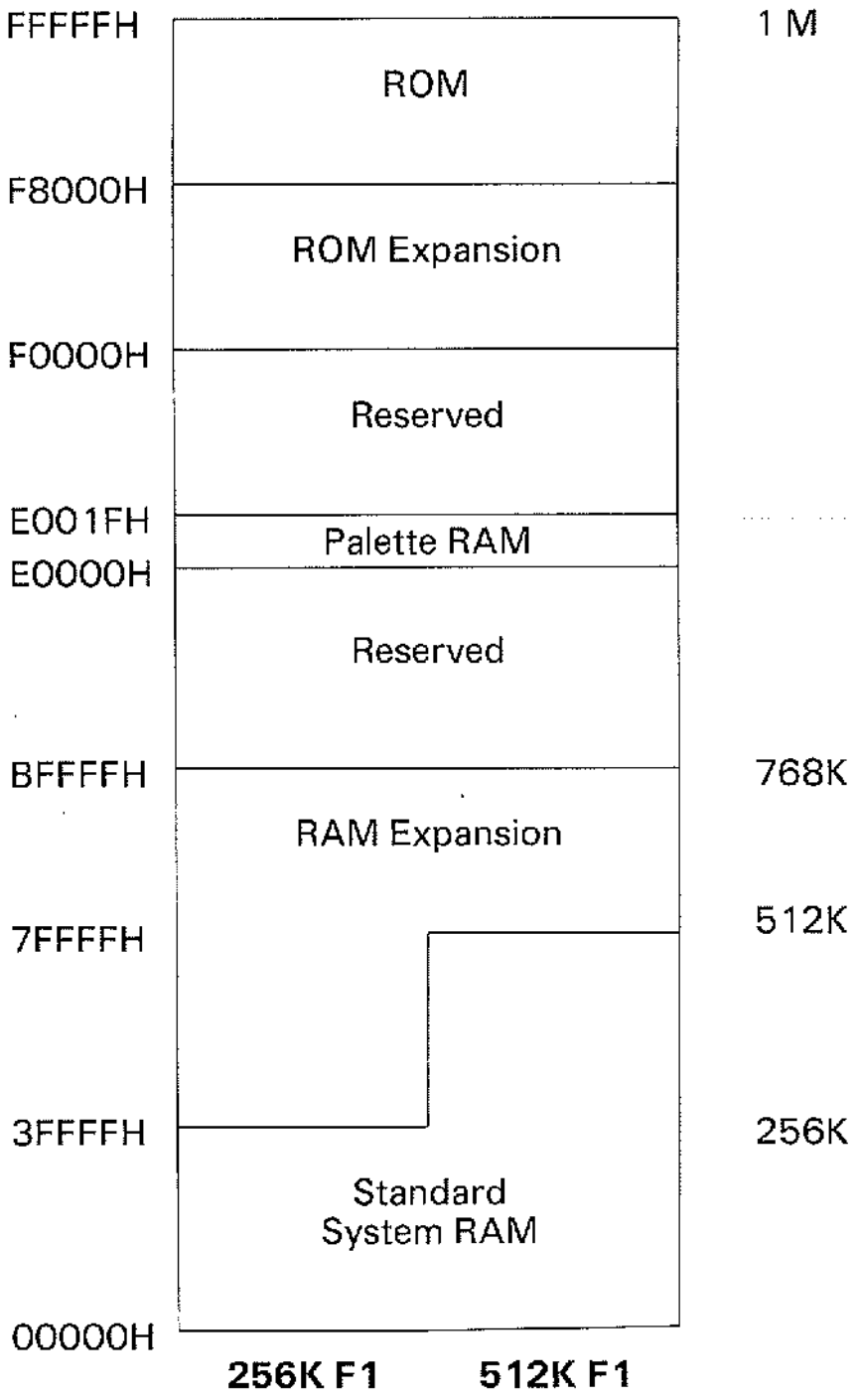
1. Display Options.
2. RAM Expansion Boards.
3. Modem Board.
4. LAN Board.
5. Mouse.
6. Apricot MSD.
7. Expansion Unit

RAM Expansion Boards

The RAM Expansion Boards are single board Expansion cards. The boards are available in three different memory sizes, 128 Kbyte, 256 Kbyte and 512 Kbyte. In the F1, the appropriate board can be installed to increase the standard 256 Kbytes to any one of the following values:

1. 384 Kbytes.
2. 512 Kbytes.
3. 768 kbytes.

Memory Map


FFFFFH
1 M
ROM
F8000H
ROM Expansion
F0000H
Reserved
E001FH
Palette RAM
E0000H
Reserved
BFFFFH
768K
RAM Expansion
7FFFFH
512K
3FFFFH
256K
Standard
System RAM
00000H
256K F1
512K F1

Apricot MSD

This device provides the F1 with instant access to a large capacity (10 Mbyte) Winchester Disk. It is supplied as three items; a Winchester Controller Board, a Winchester Disk and a small power supply unit. The Winchester Controller Board plugs into the F1's Expansion Slot, the other two items are mounted externally to the Systems Unit.

The Winchester drive is supplied pre-formatted complete with system tracks. It is configured as a single volume (drive ***A***) to take full advantage of the tree-structured directory features of MS-DOS 2.11 and its future derivatives. (The floppy disk drive in a single Winchester system is automatically re-assigned as drive ***B***)

Support for a Winchester is inherent in the standard ROM BIOS. All the user has to do to use the Winchester is install the components correctly and switch on.

Included in the initialisation routines of the ROM BIOS is a routine which checks for the existence of a Winchester Controller Board. If present, it checks the Winchester Disk Drive to determine it's size.

At the end of the initialisation sequence, the ROM BIOS displays the startup screen. If a Winchester is present, this is slightly modified from the standard display, to include the size of the Winchester Disk.

At the start of the boot sequence, the ROM BIOS first checks the floppy disk drive for a bootable disk. If not present, the machine boots automatically from the Winchester Disk, providing the user with instant access to a large non-volatile storage medium.

Expansion Unit

The F1 Expansion Unit provides the F1 with multiple Expansion Slot capability. It is a separately powered unit and has been designed to be linked into the F1 using the F1 expansion connector. This is accessible by removing a small cover panel on the right hand side of the machine.

The cable extension extends the expansion bus out of the F1 into the Expansion Unit. Here it is bufferd and re-powered to provide sufficient drive capability for two Apricot compatible expansion slots.

Expansion 2.5

Contents

Illustrations

Introduction

The F1 has two expansion connectors, which enable it's basic processing system to be extended.

One connector is located internally within the F1 Systems Unit and has been designed to take a standard ACT Expansion Board. The second connector is accessible from the right hand side of the F1 Systems Unit and is designed to link in an external Expansion Unit.

To differentiate between these two connectors in the following description, the internal connector is referred to as the Expansion Slot. The externally accessible connector is referred to as the Expansion Connector.

A high degree of compatibility has been maintained with the other products within the Apricot range of computers. This is such that all existing ACT Expansion Boards (Winchester Controller, Modem, RAM cards, etc) can be used with the F1 without any modifications to the Expansion Board hardware.

Details

General

The internal Expansion Slot and the external Expansion Connector are tracked onto the System Board. The block diagram (Figure 1) shows how the System Bus and other control lines are wired to the Expansion connectors.
They consist of:

1. The 16-bit System Data Bus.
2. The 20-bit System Address Bus.
3. Various control lines for interrupts and data transfers.
4. Power supply output(s).

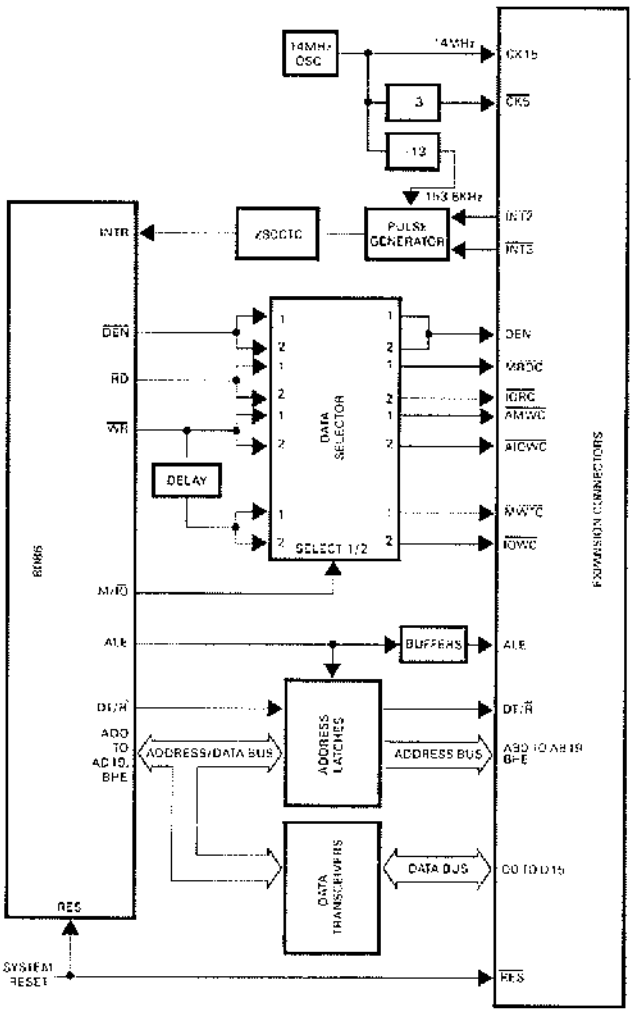


Figure 1. Expansion bus.

Expansion Slot

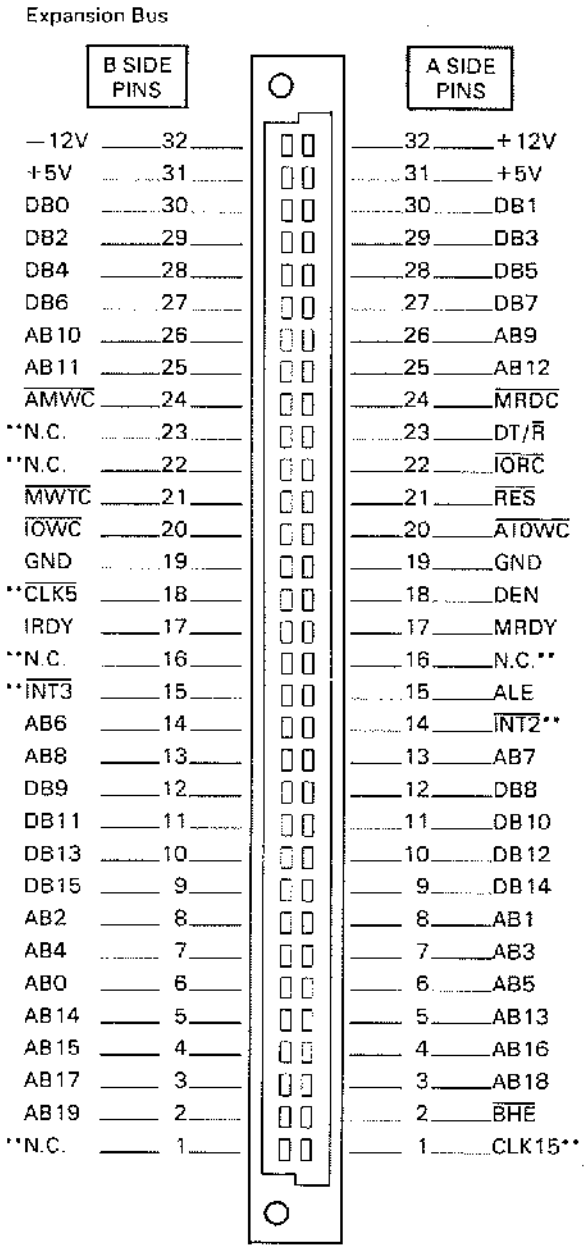
The internal Expansion Slot is the same physical connector as used on other Apricot products (pc/xis and Portables). This is a 64-way connector (DIN 41612, 2 by 32 female, with a type B housing).

Of the 64 connections routed to the slot, 59 are compatible connections with the other products in the Apricot range mentioned above. There are minor differences in detail in these compatible connections. For example, the 15 Mhz clock output on the pc/xi corresponds to 14 MHz on the F1 (see Figure 2).

The connections that are substantially different are also marked on Figure 2. The main area of differences are:

1. There are no DMA facilities available on the F1 as provided on the pc/xi range of products.
2. The 8086 NMI line is not routed to the slot on the F1 since it is used within the system for disk transfers.

An Expansion plate on the rear panel of the F1 can be removed to allow external connections to be made to Expansion Boards fitted into the Expansion Slot.



**Indicates differences with other products within the Apricot range. See Table below.

Pin	pc/xi	Portable	F1
A1	CK15	CK15	CK15 (14MHz)
A11	INT2	INT3	INT2
A16	EXT2	N.C.	N.C.
B1	NMI	NMI	N.C.
B15	INT3	INT5	INT3
B16	EXT1	N.C.	N.C.
B18	CK5	CK5	CK5 (4.67MHz)
B22	DMA1	N.C.	N.C.
B23	DMA2	N.C.	N.C.

Figure 2. Expansion Slot

Pin Definition - Expansion Slot/Connector

Pin	Description	Input/Output
AB0 to AB19	20-bit system address bus	Output
DB0 to DB15	16-bit system data bus	Bi-directional
$\overline{BHE}$	Bus High Enable	Output
ALE	Address Latch Enable	Output
$\overline{DEN}$	Data Enable	Output
DT/$\overline{R}$	Data Transmit/Receive	Output
$\overline{AMWC}$	Advanced Memory Write Command	Output
$\overline{MWTC}$	Memory Write Command	Output
$\overline{AIOWC}$	Advanced Input/Output Write Command	Output
$\overline{IOWC}$	Input/Output Write Command	Output
$\overline{MRDC}$	Memory Read Command	Output
$\overline{IORC}$	Input/Output Read Command	Output
MRDY	Memory Ready	Input
$\overline{IORDY}$	Input/Output Ready	Input
$\overline{RES}$	System Reset	Output
CLK15	14MHz Clock signal	Output
$\overline{CLK5}$	4.67MHz Clock signal	Output
$\overline{INT2}$	Interrupt Request 2	Input
$\overline{INT3}$	Interrupt Request 3	Input
+ 12V	System Board supply rail	Output *
— 12V	System Board supply rail	Output
+ 5V	System Board supply rail	Output *

* not available on the Expansion Connector