VAXft Systems

Configuring the Model 810

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VAXft Model 810 Systems

The VAXft Model 810 system is the second generation of Digital's fault tolerant systems. Earlier VAXft systems include the Models 110, 310, 410, 610, and 612.

Hardware Features

The VAXft Model 810 has a VAX CPU that provides 30 VUPs of processing power. (One VUP equals the processing power of a VAX–11/780 system.) With speeds up to six times faster than the Model 610, the Model 810 moves Digital into the forefront of the fault-tolerant market.

In addition, the Model 810 system has an I/O Attachment Module. The ATM is a separate VAX processor that handles I/O interrupts from the console terminal and the DSSI and Ethernet interface modules. The DIMs and EIMs make the bus type transparent to the I/O processor.

The VAXft Model 810 system also has the following features:

- Fully redundant hardware

  One of each type of element in the system is always available.

- No single point of hardware failure

  No failure of a single hardware element is capable of bringing down the entire system.

- No single point of repair

  All repairs can be made without disrupting running applications.

- Uninterruptible Power Supply (UPS)

  Power outages of short duration, brownouts, and power fluctuations, the most common environmental causes of computer failures, do not affect VAXft systems.

- Self-checking checkers

  These checkers ensure that system integrity is not compromised if a fault occurs in the checking logic.

Software Features

The VAXft Model 810 supports:

- OpenVMS Operating System Version 5.5-2HF

  The multitude of OpenVMS layered products and OpenVMS applications can be run on VAXft systems without modification or recompiling. In addition, little additional operator training is needed for VAXft systems.

- OpenVMS Volume Shadowing Phase II

  OpenVMS Volume Shadowing enables all disks, including the system disk, to be grouped into a shadow set of two or three disks. The same data is written to all disks in the set to ensure that the loss of a disk drive does not affect the ability of an application to run.

- VAXft System Services Version 2.0

  Features of VAXft System Services software include support for the following capabilities:

  - Automatic failover of hardware
  - Hardware fault isolation and recovery
  - Configuration management of I/O components
  - DCL commands to start, stop, and show zones
  - Tools and utilities to manage the system

VAXft Model 810 Configurations

There are four VAXft Model 810 system configurations:

- Single Cabinet Entry System
- Single Cabinet Packaged System
- Dual Cabinet Packaged System
- Dual Cabinet Advantage Server System

Each system includes many of the same components; the common components included in each zone in the system cabinet are described in Table 1. In all systems, both zones must be configured identically, including memory and disks.

Table 1 Components in the System Cabinet

Component	Description
KA560-AA	VAX CPU; One included per zone; memory is attached to the CPU
MS560-AA	32 MB memory pair; up to a maximum of four allowed
MS560-BA	64 MB memory pair; up to a maximum of four allowed
KD560-AA	I/O Attachment Module; one included per zone
KDXRA-AB	Ethernet interface module pair; one to four per system
KDXDA-AB	DSSI interface module pair; two to six per system; maximum of four total Ethernet and DSSI interface module pairs per system
RF35-HA	850 MB in-zone disk; one per zone comes with the single cabinet packaged system; optional with other systems; up to six allowed

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Table 1 (Cont.) Components in the System Cabinet

Component	Description
CK-KDXDA-RA	DSSI cabinet kit for in-zone disks (comes with the single cabinet packaged system; optional with other systems unless in-zone disks are present)

Some components come with a system, but are not inside either cabinet. They are shown in Table 2. For example, a console terminal is required for each zone. For single cabinet systems, a table-top tape is available.

Table 2 Optional Components Outside the Cabinets

Component	Description
TF85-TA	2.6 GB table-top cartridge tape
4N-AEAAH	One 3.6 KVA floor-standing UPS per zone[1]
VT420	One console terminal is required per zone

[1]For fault tolerant operation, a UPS is required for each zone; however the recommended UPS is optional. A non-Digital UPS must transition within 10 milliseconds of a power failure to protect VAXft processing continuity and to ensure against any lost work.

Two of the Model 810 system configurations come with an expansion cabinet as well as the system cabinet. In addition, the two single cabinet configurations can be upgraded to include an expansion cabinet. Disks and tapes can be added as needed to the expansion cabinet. The components that are available in the expansion cabinet are listed in Table 3.

Table 3 Components in the Expansion Cabinet

Component	Description
SF73-HK	4 GB half-rack storage array with two RF73
SF73-JK	8 GB half-rack storage array with four RF73
SF73-UK	4 GB (two RF73) upgrade kit for SF73-HK
SF35-BK	1.7 GB half-rack storage array with two RF35
SF35-HK	5.1 GB half-rack storage array with six RF35
SF35-JK	10.2 GB half-rack storage array with 12 RF35
SF35-UK	0.85 GB RF35 disk and upgrade kit for SF35-BK/HK
TF85C-BA	2.6 GB cartridge tape
TF857-AA	18.2 GB magazine tape subsystem

The four VAXft Model 810 system configurations are described in the next two sections. With each description is a drawing of the system. In the drawings, slots that are not referenced in the associated tables contain various cooling and power modules that are included with every system. Although many cables, such as power and DSSI, connect modules within the system, only the Crosslink cable is shown in the drawings.

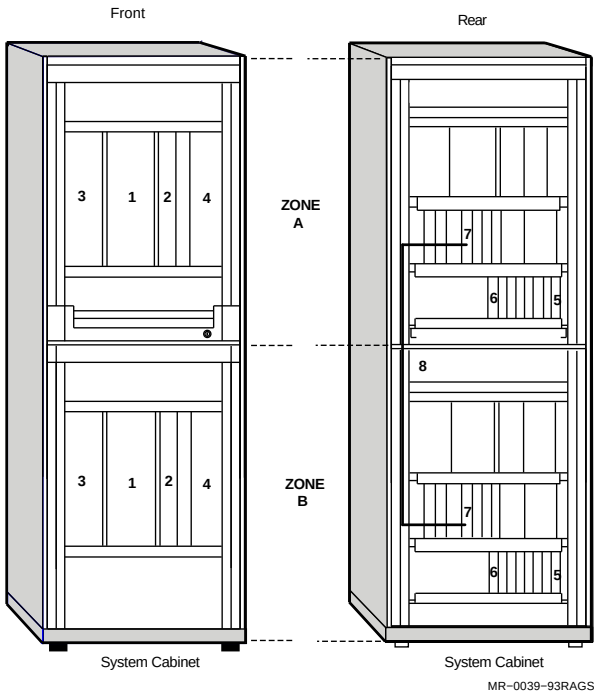
Single Cabinet Systems

Two single cabinet VAXft Model 810 systems are available, an entry system and a packaged system. The components for both single cabinet systems are given in Table 4 and shown in Figure 1. Both single cabinet systems can be upgraded to a dual cabinet system with an expansion cabinet.

Table 4 Components for Single Cabinet Systems

Item	Component	Description
1	KA560-AA CPU MS560-AA/BA Memory	Included; one per zone with: one MS560-AA included in entry system; one MS560-BA included in packaged system; maximum of 256 MB memory allowed
2	KD560-AA I/O ATM	Included; one per zone
3	Drawer containing RF35-HA Disks	One system disk per zone included in packaged system; maximum six disks per zone
4	Zone Control Panel	System indicators and zone control switches
5	KDXDA-AB DSSI Interface Module pair	One included per zone; one per zone can be added; maximum six devices per DSSI interface module per zone
6	KDXRA-AB Ethernet Interface Module pair	One included per system; maximum four per system; maximum four total Ethernet and DSSI interface module pairs per zone
7	Crosslink Module	Module responsible for the interconnection between the two zones
8	Crosslink Cable	Connects Zone A to Zone B through the Crosslink modules
	TF85-TA Tape Drive (not shown)	Optional; maximum one per zone; if tape is included, one less disk allowed
	4N-AEAAH UPS (not shown)	Optional; however, fault tolerant operation requires UPS
	VT420 (not shown)	Included, one per zone

Figure 1 Single Cabinet System



Dual Cabinet Systems

Two expanded VAXft Model 810 systems are available, a packaged system and an advantage server system. The systems differ only in that the advantage server comes with a tape and a NAS 400 software license. The components for both dual cabinet systems are given in Table 5 and shown in Figures 2 and 3.

Table 5 Components for Dual Cabinet Systems

Item	Component	Description
1	KA560-AA CPU MS560-AA/BA Memory	Included; one per zone with: one MS560-BA included; maximum of 256 MB memory allowed
2	KD560-AA I/O ATM	Included; one per zone
3	Drawer containing RF35-HA Disks	Optional; maximum six
4	Zone Control Panel	System indicators and zone control switches
5	SF35 with RF35 Disks and/or SF73 with RF73 disks	One SF35-BK with two disks included; maximum of: 36 RF35 disks 28 RF73 disks 10 of any combination of SFs[1] 8 of any combination of SFs and 2 TFs
6	TF85C-BA Cartridge Tape	Optional; maximum two, or one plus one TF857-AA per zone; one fewer SF is allowed for each TF
7	TF857-AA Magazine Tape Subsystem	Optional; maximum two, or one plus one TF85C-BA per zone; one fewer SF is allowed for each TF
8	KDXDA-AB DSSI Interface Module pair	One included per zone; maximum three; maximum six devices per DSSI interface module; maximum four total Ethernet and DSSI interface module pairs
9	KDXRA-AB Ethernet Interface Module pair	One included per zone; maximum two; maximum four total Ethernet and DSSI interface module pairs

[1]One fewer storage array is allowed in the expansion cabinet if disks are in the system cabinet.

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Table 5 (Cont.) Components for Dual Cabinet Systems

Item	Component	Description
10	Crosslink Module	Module responsible for the interconnection between the two zones
11	Crosslink Cable	Connects Zone A to Zone B through the Crosslink modules
	4N-AEAAH Floor Standing UPS (not shown)	Optional; however, fault tolerant operation requires UPS
	VT420 Console Terminal (not shown)	Included, one per zone

Figure 2 Dual Cabinet System (Front)

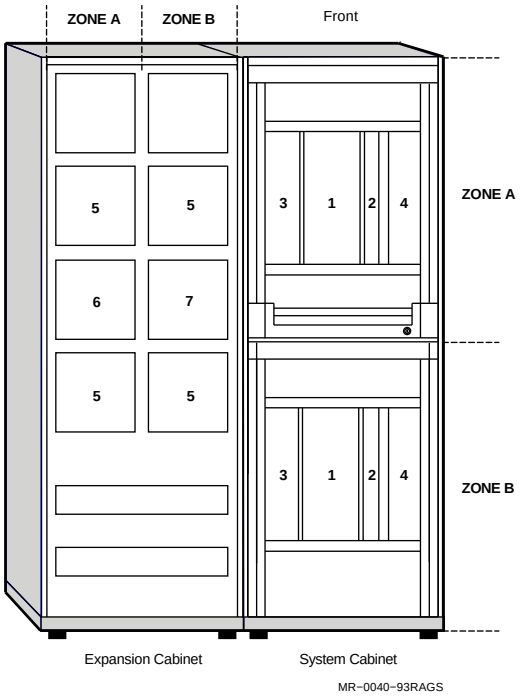
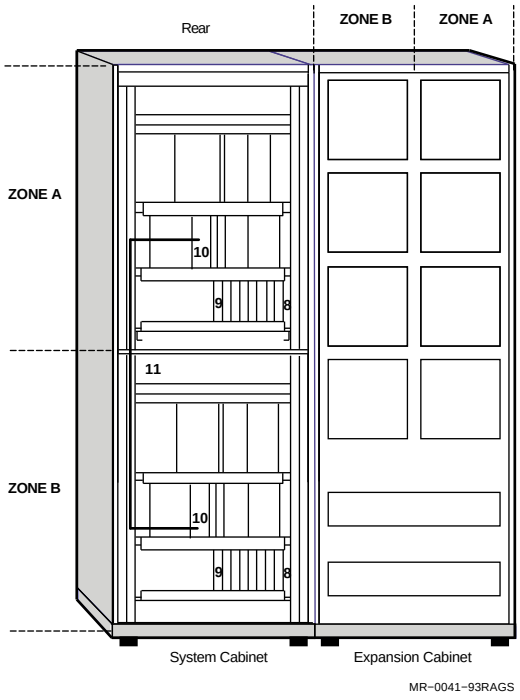


Figure 3 Dual Cabinet System (Rear)



Configuring Ethernet Connections

Ethernet connections enable communications with other computers in a LAN. The VAXft Model 810 system supports either standard or ThinWire redundant connections to a single Ethernet or multiple Ethernets. Figure 4 shows redundant connections to a single Ethernet, while Figure 5 shows redundant connections to multiple Ethernets. Up to four Ethernet interfaces per zone can be configured. Note that both zones must be connected to the same physical Ethernet segment. They cannot be separated by LANbridges, repeaters, or any other device that would separate the physical segment between the zone connections.

Figure 4 Model 810 Connected to a Single Ethernet

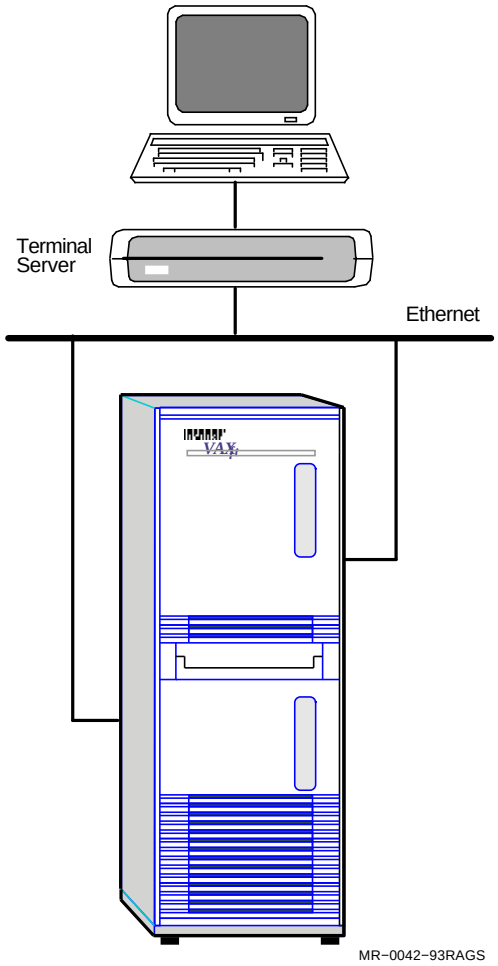


Figure 5 Model 810 Connected to Dual Ethernets