

Certificate of Volatility

Manufacturer: Xerox

Equipment Name: Work Centre PE120/PE120i

Model: PE120, PE120i

Configuration: The PE120i is networked to print servers with operating systems Windows 98/ME/NT4.0/2000/XP/2003, MAC (web downloadable, PS print only) and Linux (scan and print only)

General description: The PE120i printer is connected to a network.

Purpose: Multi-Functional Device, Print, Copy, Fax, and Scan

1. Type of memory:

Volatile memory: What is the amount? What period of time does the unit need to be powered off to completely erase this memory?

User Interface Volatile memory:

DRAM: No (In FLASH ROM)

Marking Engine Volatile memory:

SRAM: No

Scanner Volatile Memory:

SRAM: 128 KB (No user image data stored.)

Copy Controller Volatile Memory:

SDRAM 28 MB (User image data stored. Data lost at power off.)

FAX Card Volatile Memory:

SDRAM 4 MB (User image data stored. Data lost at after 43hour power off)

Network Controller Volatile Memory:

SDRAM 8 MB (No user image data stored.)

Video Volatile Memory:

There are also a number of RAM buffers in the video path that are used for image manipulation (Reduce/Enlarge, etc.), and all have no data retention capability. When power is removed all data is lost..

Non-Volatile Memory:

Type: What type(s) of non-volatile memory are included, EPROM, EEPROM, Flash memory, NVRAM, and battery backed, etc. (fill in)

User Interface Non-Volatile memory:

Flash ROM: No

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Marking Engine Non-Volatile memory:

Flash ROM No

Scanner Volatile Non-Volatile Memory:

DADF ROM: No

Marking Engine Non-Volatile Memory:

Flash ROM No

Copy Controller Non-Volatile Memory:

Flash ROM 12 MB (Copy, Print, Fax, Scan Controller Control code. User data stored)

NVRAM : No

Rigid Disk Drive: No

FAX Card Non-Volatile Memory:

Flash ROM No

NVRAM No

Network Controller Non-Volatile Memory:

Boot PROM 4Kbyte (User data stored)

NVRAM No

Rigid Disk Drive: No

Flash ROM : 2MB (Network Control code, No user data stored)

There are other non volatile memory devices in the multi-functional device.

CRUM : EEPROM 0.5Kbyte (User data stored)

2. **Accessibility:** Is it accessible by accidental/intentional keystroke, or software malfunction?
No. However, the login system administrator or service technician (via diagnostic operation) may adjust certain machine operational parameters. User data is never accessible.

3. If "YES, it is accessible, describe location and purpose.

Purpose: typical uses for non-volatile memory location are system identification number and system configuration, boot, and initialization parameters, for example (battery-backed NVRAM on SUNs); put in for future design needs, internal depot repair, clock circuit, "nice" to have, or to flag unauthorized software, etc.

If "NO", it is not accessible, ___X___ (Check here).

4. *Required memory:* Is device needed for normal operation, i.e. required for this processing period?
All memory listed is required for normal operation.
5. *Removal consequences:* If device memory chip is erased, what impact will this have on operation and normal function of device?

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Example: If the SUN is turned on without this means of checking for the authorized configuration, the system will not boot and therefore the data cannot be processed per the standard Practice Procedure (SPP).

ROM memory device content is required and essential for operation and normal function of the device. Loss would render the device inoperable.

6. *Method of access:* How is it accessed? Is non-volatile memory location theoretically accessible with any system code, not just via the operating system or low level booting firmware?

Marking Engine non-volatile memory is used for storing Multifunction Device application settings and is accessible by application level code. There is no user access to the memory devices, except as provided programmatically to control device behaviors.

Remember: Modifying internal programming to access is not the same thing as unknowingly accessing from an accidental keyboard stroke.

7. *Warranty:* Does chip removal or EEPROM erasure void the warranty?

Yes, memory removal or erasure will void the warranty. Disk removal of the internal disk drive will void the warranty.

8. *Size:* How much memory is contained? Number of bytes, etc.

See section 1, "Type of Memory"

9. *Spacing:* Is the memory fully utilized or does it have available memory space for additional information to be placed?

The non-volatile memory devices are sized to contain the necessary amount of data required for system operation. Usually there are some unused memory addresses where additional information could be theoretically stored. Without access to the software developers' memory maps, determining the location of this unused memory would require reverse engineering the software.

10. Can this non-volatile memory be addressed to ensure that only authorized information is resident? If yes, how?

At boot-up, the system computes a checksum for each non-volatile memory device. (Note: The computed checksum is compared against a value stored in the device itself. This is sufficient to detect hardware failures, but not necessarily intentional corruption.)