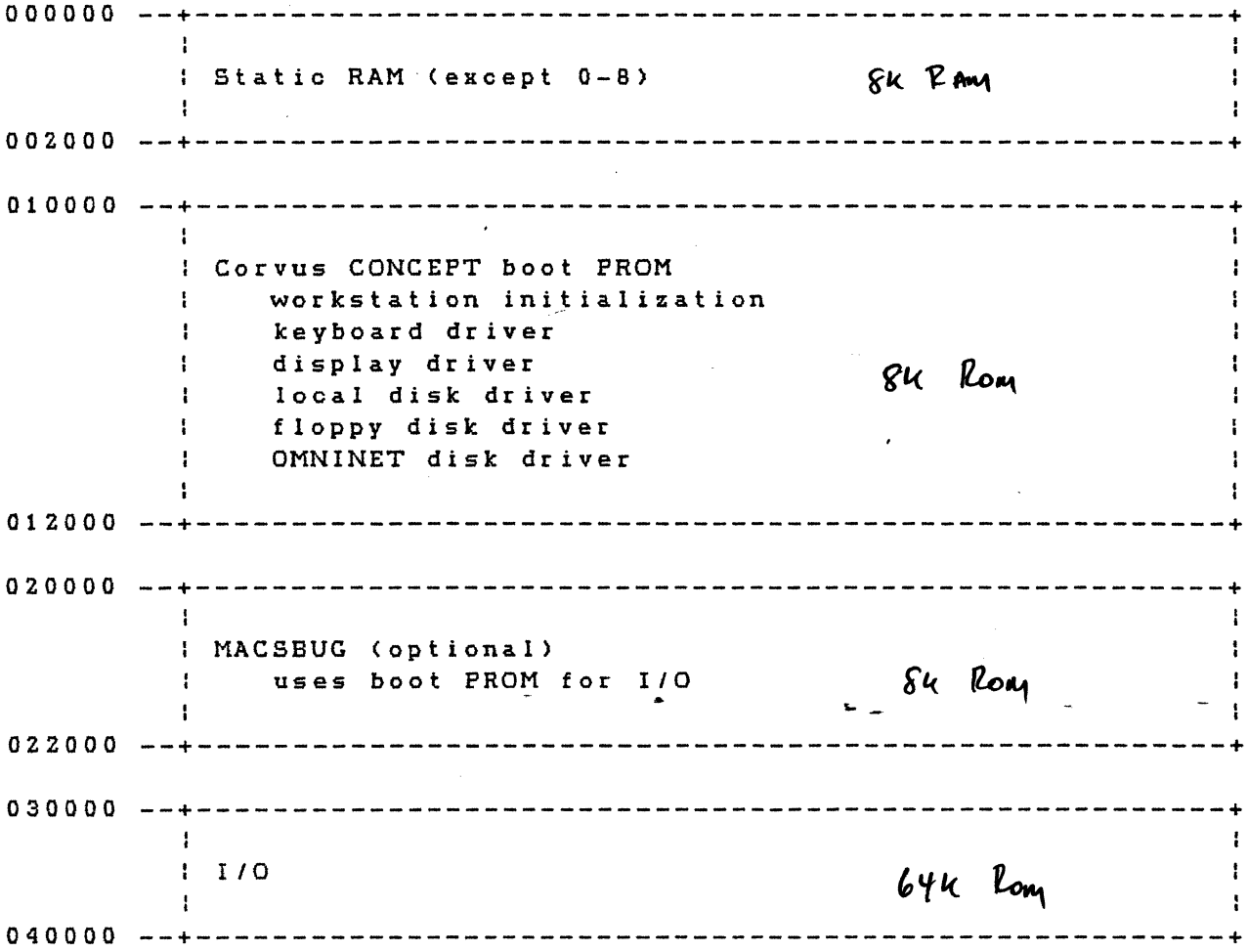
Subject: Corvus CONCEPT Memory Map

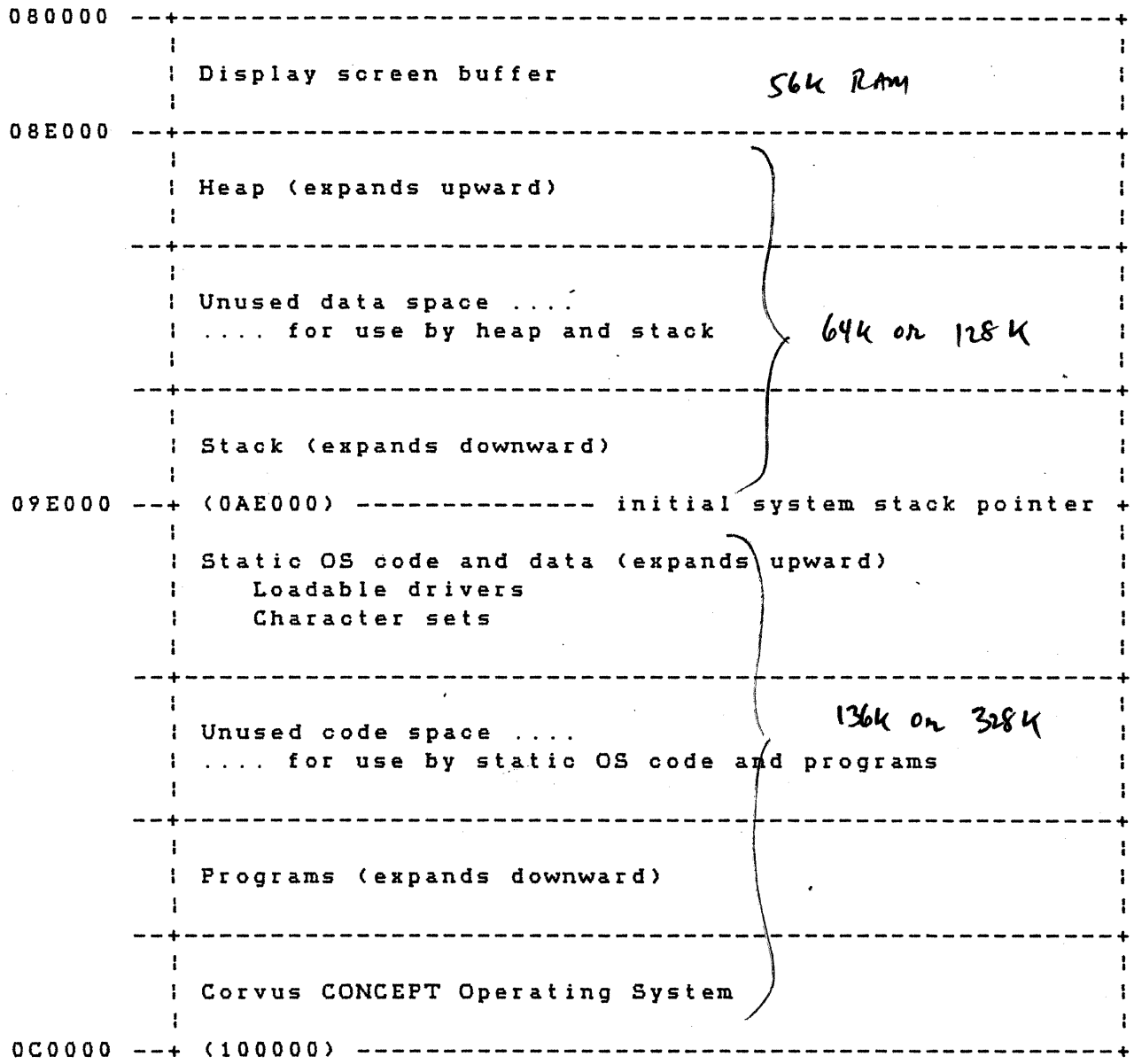
Rev Lvl: 01 07-21-82 L. Franklin

This Technical Note discusses the Corvus CONCEPT memory map. The initial system stack pointer is defined and the procedure to change the initial system stack pointer is described.

Memory Map

The following is a memory map of the Corvus CONCEPT workstation. Primary address locations are for 256k systems. (....) address locations are for 512k systems.




080000
Display screen buffer
56K RAM
08E000
Heap (expands upward)
Unused data space ....
.... for use by heap and stack
64K or 128K
Stack (expands downward)
09E000
(0AE000) ---------- initial system stack pointer
Static OS code and data (expands upward)
Loadable drivers
Character sets
Unused code space ....
.... for use by static OS code and programs
136K or 328K
Programs (expands downward)
Corvus CONCEPT Operating System
0C0000
(100000)

After the operating system and required drivers are loaded, memory available to the user is:

memory size	code	data	
256k	83k	57k	= 140k ⇒ 60k OS
512k	275k	121k	= 396k ⇒ 60k OS ✓

The line dividing code space and data space is known as the initial system stack pointer. The initial system stack pointer may be adjusted to accomodate software requiring more code space or more data space. Adjusting the initial system stack pointer reinitializes (reboots) the system. Drivers are reloaded at the new initial system stack pointer, and volumes are mounted again.

Notes on Program Space Requirements

The Pascal compiler requires 82k-83k of code space. Currently, Pascal can compile on the default 256k system.

The FORTRAN compiler requires 86k of code space. Therefore, the initial system stack pointer must be readjusted in order to use the FORTRAN compiler on the default 256k system. The command "SP 9D000" adjusts the system stack pointer to allocate sufficient code space to run the FORTRAN compiler (at the expense of data space).

With very large programs, the linker may require more data space. Adjust the initial system stack pointer upward with the SP command.

Corvus LogiCalc uses data space to store model information. The table on the next page explains the relationship between memory size and Corvus LogiCalc model size.

Corvus LogiCalc Data Space Requirements

memory	SP	model size	comment
256k	9E000	997	system default
256k	A4000	1,509	practical limit
512k	AE000	2,363	system default
512k	DE000	6,459	
512k	E4000	6,971	practical limit

Display or Set the Initial System Stack Pointer Command

The command SP stands for initial system "Stack Pointer", and is used to determine where the stack pointer is to be located in system memory. There are two forms of the SP command:

The SP command without arguments displays the current setting of the stack pointer:

```
Select function: SP
sp = 0009E000
```

The SP command with a parameter sets the initial stack pointer to that value if the parameter is valid. The parameter is interpreted as a hexadecimal number.

```
Select function: SP A0000
Restarting ....
```

After the SP command sets the system stack pointer, it restarts the system. A message is issued (Restarting ....) and the operating system reinitializes by loading drivers, mounting volumes, etc.

The SP command can only be issued in the top level dispatcher. Any attempt to change the value of the initial stack pointer from a nested program results in an error message.

An attempt to set the stack pointer to an invalid value (such as an odd address or overlaying code and stack) results in an error message. In this case, the initial stack pointer value is not changed.