SMSQ/E for GOLD and Super GOLD Cards

Introduction

SMSQ/E for the GOLD and Super GOLD Cards has a number of important improvements in the handling of the serial and parallel ports. In addition, the V2 disk driver supplied with the GOLD and Super GOLD cards has been replaced by the DV3 disk driver subsystem. This means that IBM format floppy disks may be read and written as easily as QL format disks.

Loading SMSQ/E

SMSQ/E for the GOLD and Super GOLD Cards is supplied as an executable file (SMSQ_GOLD) which may be loaded at any time using the LRESPR command or by executing it. Note that you cannot LRESPR a version of SMSQ_GOLD if that using the same version of SMSQ (you can, however, execute it). This means that the LRESPR command for SMSQ_GOLD can safely be put within (preferably at the start of) a normal BOOT file.

```
100 PRINT VER$            VER$ will be printed by QDOS and then by SMSQ
110 LRESPR SMSQ_GOLD      QDOS will load SMSQ, SMSQ will ignore this
120 LRESPR QPAC2          QDOS will not get this far, SMSQ will load QPAC2
```

Note that SMSQ incorporates the latest versions of the pointer environment (PTR_GEN, WMAN and HOT_REXT) so these should not be loaded. Lightning cannot be used when the Pointer Environment is already installed, but this does not matter too much as the CON driver of SMSQ/E is, under most circumstances, within a few percent of that speed.

Machine Type

The two standard functions to determine the machine type are, of course, supported.

MACHINE

The MACHINE function returns the machine type.

10 GOLD Card.
11 GOLD Card with HERMES.
12 Super GOLD Card.
13 Super GOLD with HERMES.

PROCESSOR

The PROCESSOR function returns the 680x0 family member - 0 for the GOLD card or 20 for Super GOLD Card.

```
IF MACHINE = 11 OR MACHINE = 13 : PRINT "HEY! I've got Hermes!"
IF MACHINE = 12 AND PROCESSOR <> 20: PRINT "Where's my 68020 gone!!"
```

GOLD Card Display

DISP_TYPE

The DISP_TYPE function is used to find the type of display. For the Gold and Super GOLD card, this is either the standard QL display (DISP_TYPE = 0) or the extended Aurora display that supports VGA like display modes (DISP_TYPE = 3).

```
if DISP_TYPE : PRINT "This is not a QL display"
if DISP_TYPE = 3: PRINT "I can have lots of pixels"
```

Note that DISP_TYPE does not indicate the actual resolution or display mode: it only indicates the type of hardware fitted.

Serial (RS232) Ports on the GOLD and Super GOLD Card

Unlike the QL serial ports drivers, the SMSQ serial port drivers are dynamically buffered. There is, therefore, no need to use the PRT device.

There are two serial ports on the outside of standard QL although there is only one serial port inside which is shared between the two external ports. This sharing places serious limitations on the capabilities of these ports.

In addition, the implementation of the IPC, which provides serial input on the QL, left a lot to be desired. The Hermes replacement chip provides a number of major improvements. Apart from general improvements in reliability, the Hermes chip also permits the receive baud rate to be different for each external port and to be different from the transmit baud rates.

The Baud rates supported by the GOLD and Super GOLD Card are

19200	
9600	
4800	
2400	
1200	
1275	1200 receive 75 transmit (Hermes only)
600	
300	
75	75 receive 1200 transmit (Hermes only)

Note that, if different baud rates are be used for transmitting on the two ports, you are unlikely to be able to receive any data without the Hermes chip.

BAUD 19200	*set both ports to 19200 / 19200*
BAUD 2,1275	*reset SER2 to 1200 receive, 75 transmit (V23)*

STX

Because the internal receive hardware is shared between the two input ports, having an input port open unnecessarily can reduce the performance of the other port considerably. For example, if you are using SER2 to connect your QL to a modem for accessing a bulletin board, opening SER1 to print a log file will seriously affect the performance of SER2. If, on the other hand, you open the transmitter side of the SER1 port only (using the device name STX1) the receive performance of SER2 will not be affected.

OPEN #3, ser2	*receive and transmit on SER2*
OPEN #4, stx1	*transmit on;y on SER1*

XON XOFF

Although it has been stated by Sinclair that hardware handshaking is required for serial communication with the QL, the XON XOFF protocol is supported by SMSQ/E. The problem is that whether the main flow of data is from the QL or to the QL, the loss of any data on reception by the QL can completely screw up the protocol. Test have shown, however, that the SMSQ/E implementation of XON / XOFF allows heavy flows of data at up to 4800 baud from the QL, and, more surprisingly, heavy flows of data at up to 2400 baud to the QL. With Hermes fitted, higher speeds should be possible.

Super GOLD Card Printer Port

The PAR device (parallel printer port) is only available on the Super GOLD card. By default output is dynamically buffered: the PRT device is not required.

GOLD Card Floppy Disks

SMSQ/E for the GOLD card and Super GOLD card supports up to 4 disk drives which may be single, double, high or extra high density. The SMSQ/E FLP driver can read or write QL5A, QL5B, TOS and MSDOS format diskettes. It can format QL5A (DD) and QL5B (HD, ED) format diskettes.

Floppy Disk Driver Name

The default name of the floppy disk driver is FLP. The internal drive is FLP1. The external drive (if any) is FLP2.

FLP_USE

FLP_USE may be used to set the name of the FLP device. The name should be 3 characters long and in upper or lower case.

FLP_USE mdv	*The FLP device is renamed MDV*
FLP_USE FLP	*The FLP device is restored to FLP*
FLP_USE	*The FLP device is restored to FLP*

FORMAT FLP

The SMSQ/E FLP driver will usually format a diskette to the highest density it can. The density may, however, be set using the FLP_DENSITY command or by adding a special code to the end of the medium name in the format command.

FLP_DENSITY

The SMSQ/E format routines will usually attempt to format a disk to the highest density possible for a medium. The FLP_DENSITY (*code*) is used to specify a particular recoding density during format.

The density codes are "S" for single sided (double density), "D" for double density, "H" for high density and "E" for extra high density.

FLP_DENSITY S	*Set the default format to single sided*
FLP_DENSITY H	*Set the default format to high density*
FLP_DENSITY	*Reset to automatic density selection*

The same code letters may be added (after a *) to the end of the medium name to force a particular density format. (For compatibility with older drivers, if the code letter is omitted after the *, single sided format is assumed.)

FORMAT 'FLP1_Disk23'	*Format at highest density or as specified by FLP_DENSITY*
FORMAT 'FLP1_Disk24*'	*Format single sided*
FORMAT 'FLP1_Disk25*S'	*Format single sided*
FORMAT 'FLP1_Disk25*D'	*Format double sided, double density*

FLP_TRACK

The FLP_TRACK (*number of tracks*) is used to limit the number of tracks formatted.

FLP_TRACK 23	*Only format 23 tracks*

FLP Control Commands

FLP_SEC

FLP_SEC (*level*) was used to set the security level. The security of the data stored on the diskettes can be seriously compromised if you change diskettes while there are files open. The security level affects the amount of time the FLP driver spends maintaining the data on the diskette up to date with the internal copies of the data in memory. In principle, a lower level is more efficient, but more risky. With the increasing use of hard disks, the security level of the FLP has been fixed at level 2: the most secure. FLP_SEC is ignored.

FLP_START

The FLP_START (*ticks*) command specifies the number of ticks (1/50th of a second) that the FLP driver waits after starting the drive before writing to it. This allows the diskette to get up to speed before the write operation. The default value is 24, which is a wait of about 0.5 s. There should not be any reason to use this command.

FLP_STEP

Some drives require step rates slower than the 3ms which is standard in the SMSQ/E FLP driver. For these, the FLP_STEP command may be used to set the step rate either for all drives or for a particular drive.

FLP_STEP 6	*set all drives to 6 ms step rate*
FLP_STEP 2,4	*set FLP2 to 4 ms step rate.*

GOLD Card Microdrives

This version does not support the QL microdrives.