

Reset/Initialization Sequence

DCE Flight Software Requirements Document:

Section 5.1

DCE Software Design Document:

Section 4.2.2 (Figure 4.2-1)

Location in 8051 Code:

On page 2 of **INITIALZ.LST** see the reset vector at address 0

0000 020000 F 2252 LJMP DPUINIT ; Power-up reset entry point

Note that all interrupt activity originates in this table.

The actual code block reset/init code starts at DPUINIT on page 18 of **INITIALZ.LST**

05A0 3485 DPUINIT:

Executive Loop Initialization Sequence

DCE Flight Software Requirements Document:

Section 5.1

DCE Software Design Document:

Section 4.2.2.4.3

Location in 8051 Code:

On page 19 of **INITIALZ.LST** we finish initialization and start the mainroutine:

05FD 020000 F 3598 JMP REENTRY ; start DPU activity...

The on page 40 of **EXECUTIV.LST** we find the REENTRY label

0000 4543 REENTRY:

which does some basic setup and the calls the following:

0006 120000 F 4551 CALL LOCALINIT ; a simple, non-reset init saves most states

Then we start the main loop:

0009 120000 F 4552 CALL MAINROUTINE ; start mainloop

And LOCALINIT starts on page 41 of **EXECUTIV.LST**:

000F 4556 LOCALINIT: ; a simple, non-reset init saves most states

Command Traffic ISR

DCE Flight Software Requirements Document:

Section 5.2

DCE Software Design Document:

Section 4.2.4.2

Location in 8051 Code:

There are two command traffic handlers, one for the primary command channel and the other for the secondary command channel. See page 2 of **INTERNAL.LST** for this code:

0040	2307	RXD1READ:	; fetch incoming from registers
0047	2312	RXD0READ:	; fetch incoming from registers

Timer Tick ISR

DCE Flight Software Requirements Document:

Section 5.2

DCE Software Design Document:

Section 4.2.4.1

Location in 8051 Code:

On page 4 of **INTERNAL.LST**, you will find the start of the timer tick ISR.

0107	2517	T0_ISR:
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Command Reception Sub-Task

DCE Flight Software Requirements Document:

Section 5.2

DCE Software Design Document:

Section 4.2.5.1

Location in 8051 Code:

On page 49 of **EXECUTIV.LST**:

0181 120000 F 4905 CALL CHECKCMD ; check for command opcodes and set GPFLAG

On page 48 of **EXECUTIV.LST**:

0177 120000 F 4892 CALL CHECKRXDFLAG ; detect opcode, stash command buffer

Command Processing Sub-Task

DCE Flight Software Requirements Document:

Section 5.2

DCE Software Design Document:

Section 4.2.5.1

Location in 8051 Code:

On page 44 of **EXECUTIV.LST**:

00DD 120000 F 4761 CALL CHECK_COMMAND ; Process any waiting commands

Collect Counter Data Sub-Task

DCE Flight Software Requirements Document:

Section 5.2

DCE Software Design Document:

Section 4.2.5.8

Location in 8051 Code:

One page 46 of **EXECUTIV.LST**:

0128 120000 F 4812 CALL UPDATE_CTRS ; Copy counters to subaddress 25

Send HSK Data Sub-Task

DCE Flight Software Requirements Document:

Section 5.2

DCE Software Design Document:

Section 4.2.5.8

Location in 8051 Code:

On page 49 of **EXECUTIV.LST**:

017E 120000 F 4903 CALL CHECKGP ; drive housekeeping task timing, handle commands

Background Built-In Task

DCE Flight Software Requirements Document:

Section 5.2

DCE Software Design Document:

Section 4.2.5.5

Location in 8051 Code:

On page 43 of **EXECUTIV.LST**:

009B 120000 F 4687 CALL CHECK_STACK ; diagnostic only -- no repairs

On page 27 of **EXECUTIV.LST**:

04BD 3716 CHECK_STACK: ; diagnostic only -- no repairs

Command: LFDNOOP (No-Op)

DCE Flight Software Requirements Document:

Section 5.2

DCE Software Design Document:

Section 4.2.8

Location in 8051 Code:

On page 3 of **COMMAND.LST**:

004E 0100 F 2338 AJMP NO_OPER ; 00H *No Operation, can be used as...

On page 9 of **COMMAND.LST**:

0240 2704 NO_OPER: ; No Operation, can be used as

Command: LFDHKREQ (Send HSK Packet)

DCE Flight Software Requirements Document:
Section 5.2

DCE Software Design Document:
Section 4.2.8

Location in 8051 Code:

On page 5 of **COMMAND.LST**:
014C 0100 F 2465 AJMP sHKPFULL ; 7FH *Send full copy of Housekeeping

On page 9 of **COMMAND.LST**:
0225 2669 sHKPFULL:

On page 58 of **COMMAND.LST**:
0B25 4914 HKPFULL: ; force next hkp packet to contain 512 dwords

Command: LFDDIAGC (Clear Diagnostic Code Stack)

DCE Flight Software Requirements Document:
Section 5.1

DCE Software Design Document:
Section 4.2.8

Location in 8051 Code:

On page 5 of **COMMAND.LST**:
0136 0100 F 2454 AJMP aZAP_TS30 ; 74H *clear diags

On page 9 of **COMMAND.LST**:
022B 2677 aZAP_TS30:

On page 14 of **INTERNAL.LST**:
02E4 3113 ZAP_TS30:

Command: LFDUPLD (Process Memory Upload)

DCE Flight Software Requirements Document:

Section 5.5

DCE Software Design Document:

Section 4.2.8

Location in 8051 Code:

On page 4 of **COMMAND.LST**:

00A8 0100 F 2383 AJMP vUPLOAD ; 2DH Loads memory with Upload Data block:

On page 8 of **COMMAND.LST**:

0216 2650 vUPLOAD:

On page 50 of **COMMAND.LST**:

0926 4488 dUPLOAD:

Command: LFDDNL0D (Download Memory Block)

DCE Flight Software Requirements Document:

Section 5.5

DCE Software Design Document:

Section 4.2.8

Location in 8051 Code:

On page 4 of **COMMAND.LST**:

00AA 0100 F 2384 AJMP vDUMP ; 2EH *Dumps memory block: Startaddr,

On page 8 of **COMMAND.LST**:

020A 2634 vDUMP:

On page 52 of **COMMAND.LST**:

09C3 4612 DUMP: ; Dumps memory block: Startaddr, Endaddr

Command: LFDCCOPY (DCE Memory Copy)

DCE Flight Software Requirements Document:

Section 5.5

DCE Software Design Document:

Section 4.2.8

Location in 8051 Code:

On page 3 of **COMMAND.LST**:

0054 0100 F 2341 AJMP vMEM_COPY ; 03H No Operation, undefined command

On page 9 of **COMMAND.LST**:

021C 2656 vMEM_COPY:

On page 60 of **COMMAND.LST**:

0B91 5018 MEM_COPY:

Command: LFDJMPCS (Jump to Upper/Lower Code Area)

DCE Flight Software Requirements Document:

Section 5.2

DCE Software Design Document:

Section 4.2.8

Location in 8051 Code:

On page 5 of **COMMAND.LST**:

0134 0100 F 2453 AJMP vJMPCODE ; 73H *jump code

On page 8 of **COMMAND.LST**:

0201 2628 vJMPCODE:

On page 49 of **COMMAND.LST**:

08EB 4449 JMPCODE:

Command: LFDGOTO (Jump to specified address)

DCE Flight Software Requirements Document:

Section 5.2

DCE Software Design Document:

Section 4.2.8

Location in 8051 Code:

On page 5 of **COMMAND.LST**:

0122 0100 F 2444 AJMP GOTO ; 6AH *Jump to specified address and execute

On page 9 of **COMMAND.LST**:

0232 2687 GOTO: ; Jump to specified address

Command: LFDMAADDR (Set DCE Memory Monitor)

DCE Flight Software Requirements Document:

Section 5.5

DCE Software Design Document:

Section 4.2.8

Location in 8051 Code:

On page 3 of **COMMAND.LST**:

0050 0100 F 2339 AJMP vPROGRAMMONITOR ; 01H index,addr,bank

On page 8 of **COMMAND.LST**:

0213 2647 vPROGRAMMONITOR: ; 01H index,addr,bank

On page 29 of **EXECUTIV.LST**:

057F 3882 PROGRAMMONITOR: ; index,addr,bank

Command: LFDRSETP (Initiate 'Power-On' Reset)

DCE Flight Software Requirements Document:

Section 5.1

DCE Software Design Document:

Section 4.2.8

Location in 8051 Code:

On page 5 of **COMMAND.LST**:

012E 0100 F 2450 AJMP HARD_RESET ; 70H *power-on reset

On page 2 of **COMMAND.LST**:

0000 2271 HARD_RESET:

Command: LFDRSETW (Initiate Watchdog Reset)

DCE Flight Software Requirements Document:

Section 5.1

DCE Software Design Document:

Section 4.2.8

Location in 8051 Code:

On page 5 of **COMMAND.LST**:

0138 0100 F 2455 AJMP SOFT_RESET ; 75H *watchdog reset

On page 2 of **COMMAND.LST**:

0003 2273 SOFT_RESET:

Command: LFDWDOG (Watchdog Timer Enable/Disable)

DCE Flight Software Requirements Document:

Section 5.1

DCE Software Design Document:

Section 4.2.8

Location in 8051 Code:

On page 5 of **COMMAND.LST**:

0130 0100 F 2451 AJMP WD_STATE ; 71H *enable/disable watchdog

On page 11 of **COMMAND.LST**:

0270 2755 WD_STATE:

Table of DCE Op-Codes

<u>Menomic</u>	<u>OPCODE</u>	<u>Minus MSBit</u>
LFDNOOP	80	0
LFDMADDR	81	1
LFDCRC	82	2
LFDCOPY	83	3
LFGBWK	85	5
LFGWK	89	9
LFGLOT	95	15
LFGTT	97	17
LFHVMAX	8D	D
LFRLSOVD	9C	1C
LFGSTIM	9E	1E
LFGUQT	A2	22
LFGSHFT	A4	24
LFGSTR	A6	26
LFDUPLD	AD	2D
LFDDNLOD	AE	2E
LFHVLOW	B6	36
LFPCRP	BA	3A
LFHVPWR	C0	40
LFRACT1	C1	41
LFRACT2	C2	42
LFRACTEN	C3	43
LFRAXPWR	C4	44
LFRACTRS	C5	45
LFHVNOM	C6	46
LFHVSET	CB	4B
LFHRAMPT	CE	4E
LFHQPWR	CF	4F
LFHVILIM	D0	50
LFHVENA	D1	51
LFRRDIR	D9	59
LFRRPWR	DA	5A
LFRRMENA	DB	5B
LFRRILIM	DC	5C
LFHSTATE	E6	66
LDGOTO	EA	6A
LDSTP	F0	70
LDWDOG	F1	71
LDJMPCS	F3	73
LDIAGC	F4	74
LDSTW	F5	75
LDHKREQ	FF	7F