XMM Optical Monitor

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CHANGE RECORD

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0	23 Dec 1998	First version
1	12 May 2000	Updated version

Contents

1 Introduction

This document describes how to setup, build, and deliver the ^{XMM}OM software.

2 Abbreviations

XMM	X-ray Multi Mirror Mission
OM	Optical Monitor
HK	Housekeeping
KAL	Keep Alive
IFT	Integrated Functional Test
ICU	Instrument Control Unit
DPU	Digital Processing Unit
HV	High Voltage
LUT	Lookup Table
tc	Telecommand
tm	Telemetry
MSSL	Mullard Space Science Lab (University College London)
ESA	European Space Agency
SOC	Science Operations Centre
MCP	Microchannel Plate(s)
FAQ	Field Acquisition
s/c	spacecraft
GS	guide star(s)
RBI	Remote Bus Interface
TMPSU	Telescope module power supply unit
LOS	Loss of Signal

3 Typographical and Other Conventions Used in this Document

3.1 Typographical

- Running text appears in this normal Roman font.
- *Italic font* will indicate something (*e.g.*, a parameter that should not be taken literally.
- A `"typewriter" font` will be used to indicate unix/VxWorks commands.

4 The files

- basic.tar.gz is the ICU Basic Mode source code (asm and Ada)
- oper.tar.gz is the ICU Basic Mode source code (asm and Ada)
- dpu.tar.gz is the DPU source code (asm and C)
- *.cmd.0.gz are the loadable DPU hex files
- *_tc.tar.gz are the loadable telecommand packets (the sequence count and checksum need to be changed)
- *.p.gz are the DPU SREC files
- *.ps.gz are the documentation files (postscript)

5 Requirements

- GNU make: any version from the last few years, we use 3.76.1
- Tartan ADA compiler ver 5.1 with Tartan patch
- Perl 5
- GNU C

6 ICU flight code

6.1 CVS checkout

```
cvs checkout icu/fm/oper
```

6.2 Unpacking

```
tar xvfz oper.tar.gz
```

using GNU tar.

6.3 Building

- `cd icu/fm/oper/`
- Make sure Tartan Ada is set up correctly (see section 8).
- Edit the Makefile to change the following lines to suit the computer being used:
  ADALIBRARY = -L=$(USER)_fm_oper_proj:$(USER)_fm_oper_library
  ORIGMADARTL = /usr/local/lib/tartan/1750a/v5.1/rt_64k/madartl.tlib
- `make`

7 DPU flight code

7.1 Variables

If you are compiling in a directory other than xmmom, set the environment variables and the path as follows (the path should all be on one line). Because of the C-shell scripts run in the compilation of the software, **these need to be in your .cshrc file** and near the end so they don't get overridden by any

```
source XXXX
```

lines.

```
setenv MYXMMOM /tmp/xmmom
setenv XMMOMHOME /tmp/xmmom
setenv XMMOMSIMHOME /tmp/xmmom/sim
setenv XMMOMSDTHOME /tmp/xmmom/sdt
setenv XMMOMDPUHOME /tmp/xmmom/dpu
setenv XMMOMWDSPHOME /tmp/xmmom/dpu/development/white
setenv XMMOMRDSPHOME /tmp/xmmom/dpu/development/red
setenv XMMOMBDSPHOME /tmp/xmmom/dpu/development/blue
set path = (  /bin /usr/local/bin /usr/local/X11R6/bin /usr/teTeX/bin/sparc-solaris2.5
/opt/sparc/bin /usr/bin /bin /usr/ucb /usr/local/sbin /sbin /usr/sbin /usr/X11R6/bin
/usr/openwin/bin /usr/local/X11/bin /usr/local/dsp/bin /usr/local/gnu/bin
/tmp/xmmom/dpu/util/bin )
```

7.2 Unpacking

If unpacking a tar.gz file type:

```
tar xvfz dpu.tar.gz
```

using GNU tar.

7.3 CVS checkout

```
cd $XMMOMHOME
cvs checkout dpu/util
cd dpu
mkdir development
cd development
cvs checkout red white blue include
mkdir eeprom
cd ../util/src
rehash
```

7.4 Making

Edit `../../development/include/sci_com.h`

and change the define for the wait states ("STD_WAIT_STATE") from 1114 (near the bottom of this file) to 1116. Then compile:

```
makedsp -c
```

. . . wait for a while . . .

7.5 simom

To checkout and compile the DPU simom software:

```
cd $XMMOMHOME
cvs checkout sim
cd sim/src/aparm/
make uninstall clean install
cd ..
./make_all new
```

8 Setting up Tartan Ada

Make project and library directories

```
mkdir proj lib
```

Create project and library

```
adalib1750a
>mkprj XXXXX_proj proj
>mklib XXXXX_proj:XXXXX_library lib
>quit
```

Use the -L option everywhere when compiling and linking:

```
tada1750a ...-L XXXXX_proj:XXXXX_library ...
```

Copy tlink17.lcf

```
cp  egse/adascope/tlink17.lcf .
```

Copy .adascoperc

```
cp  egse/adascope/.adascoperc .
```

Create test file

```
cp  egse/adascope/hello.ada .
```

Compile

```
ada hello.ada
```

Link

```
adal hello
```

Test

```
adascope -wo hello
```

9 How to Update the Runtime Library for Interrupt 11

```
cp /usr/local/lib/tartan/1750a/v5.1/rt_64k/INTVEC.asm .
emacs INTVEC.asm
tasm1750a INTVEC.asm
cp /usr/local/lib/tartan/1750a/v5.1/rt_64k/madartl.tlib .
olib1750a madartl.tlib -replace INTVEC.tof

adalib1750a
>setrt madartl.tlib
>quit
```