

674-SO-43
SSC-DL Version 1.0



SIRTF Science Center

Downlink Segment

MIPS-24 S13.0 Test Plan

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Revision History

Version	Description	Date
1.0	Initial draft by F. Masci	25 July 2005

1. MIPS-24 Set-up and Test Plan

1.1. Preliminary

All environment variables specified below are defined in the generic “**operator.csh**” environment file located in `${SOS_ROOT}/config/${SOS_REL}/downlink`

1.2. Calibration Data

1. All calibration files will be treated as “fallback” data. All **the latest** fallback calibration data is under: `/stage/ssc-testdata-mips/fmasci/Mips24FBCal/`. Please copy this directory intact when deploying calibration files on the ops and/or I&T system.
2. The SODB:`mips1fallback` loading script and supporting files are contained under: `/stage/ssc-testdata-mips/fmasci/Mips24FBCal/FallBackDBLoading/`. Instructions are in the header of the `loadfallback.csh*` script, or, see FAQ#14 in the “Frequently Asked Questions on Mips-24 Processing” document. Ron Beck knows how.
3. Note that instead of the above, you can simply unload the `mips1fallback` table data from the downlink S13 segment test database: “`sodb_dnl5@sodb1`”, change the “primaryfile” path entries in this load file to point to your desired location, and then load this file into the I&T and/or ops database. E.G., using `dbaccess` in `sodb_dnl5@sodb1`:
 - i. **unload to “mips1fallback_version1.0.ds”** `select * from mips1fallback;`
 - ii. `${SOS_VERSION}/downlink/perltools/replaceword <old_dir_path> <new_dir_path> “mips1fallback_version1.0.ds”`then in the I&T or ops database:
 - iii. **delete from mips1fallback;**
 - iv. **load from “mips1fallback_version1.0.ds”** `insert into mips1fallback`

1.3. Control Data Files (Namelists or CDFs)

1. All **the latest** namelist files are contained under:
`/stage/ssc-testdata-mips/fmasci/Mips24cdf/`
2. It is the responsibility of the IST to check these into the operations TFS under the “MIPS-1_INT” Point of View (POV).

1.4. GNATS CRs and ARs

The following is a list of all the CRs/ARs for which Frank Masci was responsible for in S13. Not all of these pertain to MIPS-24. Items highlighted in red pertain to MIPS in general.

CR **Synopsis**

6799 Make association of refined ptg tables with respective BPHFs more robust, allow for possibility that these tables are made with earlier BPHF versions and not latest.

6777 Update `w_bqd_run_mopex.pl` to enable loading of `epIrsaPtgMetadata` and creation of jpeg previews for IRS peak-up mosaics..

6768 **DISPAXIS keyword from pointing thread for MIPS-SED**

6741 Code walk-through fixes/updates to "LoadIrsaPtgMetaData" perl subroutine.

6735 **New module to robustly compute image noise...**

6734 **New library and modules to support creation of lossy FITS images for U/L..**

6733 Update `cvtr4i2` module to report MIN, MAX pixel values to stdout.

6715 **Ensure that all p-masked pixels are NaN'd in final mips24 BCD products..**

6710 Update `GenSBPHFsForCampaign.pl` following comments from code walk-thru..

6679 Update `w_pointinghistory.pl` to add instrument/channel-specific calls to subroutine "LoadIrsaPtgMetaData".

6632 Add subroutines "LoadIrsaPtgMetaDataTable()", "mapsex()" and "libipactblread()" to `WrapperUtils.pl` library..

6630 New libraries and modules to create new downlink products to support IRSA services..

6607 Update `getPH_online` module to allow "refinedPointing" fileType (SBPHF) queries..

6600 Update `GenSBPHFsForCampaign.pl` to optionally ingest (archive and DB register) superboresight pointing history files for use in `ptgXfer` downstream.

6599 Add "refinedPointing" fileType abbreviation to subroutine "getFileTypesAbbreviation" in `Archive_Structure.pl`

6593 **Write background model estimate keywords: ZODY_EST, ISM_EST, CIB_EST to all MIPS primary BCD headers**

6555 Register some pointing-refinement (IRAC) keywords into the DB...

6554 **Implement robust scheme in pointing transfer to guard against outliers in BPHF..**

6438 **Use calibrated CSM_PRED versus Y_spot position to correct for pointing in all MIPS modes..**

6437 Come up with scheme to archive and register superboresight PH files..

6416 **Make 0-valued pixels in raw difference frames NaN's for bcd pipeline**

6103 Implement jailbar correction algorithm to mitigate jailbarring in DCEs containing saturated sources

6100 Update pointing transfer to optionally use new "super-boresight" pointing history files.

The following are all the AIs generated by Frank Masci to support the S13 delivery. Not all of these pertain to MIPS-24. Those that do are highlighted in red.

AI Synopsis

1731 DISPAXIS data type in "cdelt12_distort.tbl" is wrong

1719 Four new entries for productTypes table to support archival of IRSA-related products from new IRS post-BCD imaging thread..

1674 Update w_pointinghistory.nl to copy PKI bmask files

1667 Data-content change in ProductTypes database table

1664 New data content for ProductTypes database table

1620 To support new IRSA metadata products, please update MIPS-Ge cdf: "apertureNames.tbl" with new slit-dimension fields as per this AI

1609 Update IRS fpg template cdf (fpg.tpl) to propagate PXSCAL1, PXSCAL2 keywords from ptgXfer

1608 Update IRAC fpg template cdfs (fpg_fa.tpl and fpg_sa.tpl) to propagate PXSCAL1, PXSCAL2 keywords from ptgXfer

1607 To support new IRSA metadata products, please update cdf: "apertureNames.tbl" with new slit-dimension fields as per this AI.

1577 Super-Boresight Test Plan and operational instructions for S13.0..

1573 New IRAC namelist: "pointing_transfer.nl" for all channels to support SuperBoresight Usage.

1568 Update fpg.tpl to include new keywords: ZODY_EST, ISM_EST and CIB_EST

1567 Update fpg.tpl to include new keywords: ZODY_EST, ISM_EST and CIB_EST

1560 New mirrorparameters.tbl cal file to facilitate pointing corrections from mips24 relative spot positions.

1559 New mirrorparameters.tbl cal file to facilitate pointing corrections from mips24 relative spot positions

1.5. Input Test Data and Associated Pipeline Threads

1.5.1. MIPS-24 SUR-Mode Science Photometry Mode 1

- Job Manifest FID (\equiv AORKEY or IERKEY): 6772224
- Threads in this manifest: 1021:1030:1035:1040:1048
- Number of DCEs: 120 / 4-ensemble sets.
- Input MIPL DCE FITS files (located in operations “sos-archive”):
`/sos/archive/raw/campaign/MIPS001000/0006772224/dces/MIPS.1.*`
- Input Boresight Pointing History File (BPHF):
`/sos/archive/raw/timeperiod/2003.09/pointingHistory/BPHF.0749304000.04.pntg`

1.5.2. MIPS-24 SUR-Mode Science Photometry Mode 2

- Job Manifest FID (\equiv AORKEY or IERKEY): 4682496
- Threads in this manifest: 1021:1030:1035:1040:1048
- Number of DCEs: 68
- Input MIPL DCE FITS files (located in operations “sos-archive”):
`/sos/archive/raw/campaign/MIPS003600/0004682496/dces/MIPS.1*`
- Input Boresight Pointing History File (BPHF):
`/sos/archive/raw/timeperiod/2004.6/pointingHistory/BPHF.0772372800.04.pntg`

1.5.3. MIPS-24 SUR-Mode Science Slow-Scan Mode

- Job Manifest FID (\equiv AORKEY or IERKEY): 12747776
- Threads in this manifest: 1020:1030:1035:1040:1048
- Number of DCEs: 177
- Input MIPL DCE FITS files (located in operations “sos-archive”):
`/sos/archive/raw/campaign/MIPS004300/0012747776/dces/MIPS.1*`

- Input Boresight Pointing History File (BPHF):
/sos/archive/raw/timeperiod/2004.12/pointingHistory/BPHF.0786499200.03.pntg

1.5.4. MIPS-24 SUR-Mode Science Medium-Scan Mode

- Job Manifest FID (\equiv AORKEY or IERKEY): 5560576
- Threads in this manifest: 1020:1030:1035:1040:1048
- Number of DCEs: 808
- Input MIPL DCE FITS files (located in operations “sos-archive”):
/sos/archive/raw/campaign/MIPS003600/0005560576/dces/MIPS.1*
- Input Boresight Pointing History File (BPHF):
/sos/archive/raw/timeperiod/2004.06/pointingHistory/BPHF.0772416000.23.pntg

1.5.5. MIPS-24 SUR-Mode Science Fast-Scan Mode

- Job Manifest FID (\equiv AORKEY or IERKEY): 7747072
- Threads in this manifest: 1020:1030:1035:1040:1048
- Number of DCEs: 397
- Input MIPL DCE FITS files (located in operations “sos-archive”):
/sos/archive/raw/campaign/MIPS004300/0007747072/dces/MIPS.1*
- Input Boresight Pointing History File (BPHF):
/sos/archive/raw/timeperiod/2004.12/pointingHistory/BPHF.0786412800.03.pntg

1.5.6. MIPS-24 SUR-Mode Science Total Power Mode

- Job Manifest FID (\equiv AORKEY or IERKEY): 12111616
- Threads in this manifest: 1037:1030:1035:1040:1048
- Number of DCEs: 72

- Input MIPL DCE FITS files (located in operations “sos-archive”):
/sos/archive/raw/campaign/MIPS004000/0012111616/dces/MIPS.1*
- Input Boresight Pointing History File (BPHF):
/sos/archive/raw/timeperiod/2004.9/pointingHistory/BPHF.0780105600.04.pntg

1.5.7. MIPS-24 RAW-Mode Science Photometry

- Job Manifest FID (\equiv AORKEY or IERKEY): 7120384
- Threads in this manifest: 1028:5001:1030
- Number of DCEs: 20
- Input MIPL DCE FITS files (located in operations “sos-archive”):
/sos/archive/raw/campaign/MIPS001100/0007120384/dces/MIPS.1.*
- Input Boresight Pointing History File (BPHF):
/sos/archive/raw/timeperiod/2003.10/pointingHistory/BPHF.0749952000.04.pntg

1.5.8. MIPS-24 RAW-Mode Science Total Power Mode

- Job Manifest FID (\equiv AORKEY or IERKEY): 9353216
- Threads in this manifest: 1029:5001:1030
- Number of DCEs: 12
- Input MIPL DCE FITS files (located in operations “sos-archive”):
/sos/archive/raw/campaign/MIPS002900/0009353216/dces/MIPS.1.*
- Input Boresight Pointing History File (BPHF):
/sos/archive/raw/timeperiod/2004.03/pointingHistory/BPHF.0764208000.03.pntg

1.5.9. MIPS-24 PHOT. Flatfield Calibration with PtgXfer/Mosaicking

- Job Manifest FID (\equiv AORKEY or IERKEY): 7141888

- Threads in this manifest: 1031:1032:1021:1030:1040:1048
- Number of DCEs: 64
- Input MIPL DCE FITS files (located in operations “sos-archive”):
/sos/archive/raw/campaign/MIPS001300/0007141888/dces/MIPS.1.*
- Input Boresight Pointing History File (BPHF):
/sos/archive/raw/timeperiod/2003.10/pointingHistory/BPHF.0750556800.06.pntg

1.5.10. MIPS-24 SCAN Flatfield Calibration with PtgXfer/Mosaicking

- Job Manifest FID (\equiv AORKEY or IERKEY): 12882432
- Threads in this manifest: 1033:1034:1020:1030:1040:1048
- Number of DCEs: 888
- Input MIPL DCE FITS files (located in operations “sos-archive”):
/sos/archive/raw/campaign/MIPS004300/0012882432/dces/MIPS.1*
- Input Boresight Pointing History File (BPHF):
/sos/archive/raw/timeperiod/2004.11/pointingHistory/BPHF.0786153600.02.pntg

1.5.11. MIPS-24 Non-Linearity Calibration with PtgXfer

- Job Manifest FID (\equiv AORKEY or IERKEY): 6763264
- Threads in this manifest: 1010:1011:5001:1030
- Number of DCEs: 60
- Input MIPL DCE FITS files (located in operations “sos-archive”):
/sos/archive/raw/campaign/MIPS000900/0006763264/dces/MIPS.1.*
- Input Boresight Pointing History File (BPHF):
/sos/archive/raw/timeperiod/2003.09/pointingHistory/BPHF.0749174400.04.pntg

1.5.12. MIPS-24 SUR-Mode Dark Calibration with Pointing Transfer

- Job Manifest FID (\equiv AORKEY or IERKEY): 7161600
- Threads in this manifest: 1000:1001:1030
- Number of DCEs: 50
- Input MIPL DCE FITS files (located in operations “sos-archive”):
`/sos/archive/raw/campaign/MIPS001400/0007161600/dces/MIPS.1.*`
- Input Boresight Pointing History File (BPHF):
`/sos/archive/raw/timeperiod/2003.10/pointingHistory/BPHF.0750902400.08.pntg`

1.6. Output Intermediate File Locations (Local Drone Directories)

- Pre-processed science and intermediate calibration BCDs (e.g., above plscriptIDs: 5001, 1000, 1010, 1020, 1021, 1028, 1029, 1031, 1033, 1037):
`${SOS_LOCAL}/<campaign>/bcd/<pao>/<reqkey>/<channum>/<expid>/<dcenum>/<plscriptid>/<fos_ver>/<sos_ver>`
- Pointing, latent, calibration and post-BCD ensemble threads (e.g., above plscriptIDs: 1001, 1011, 1030, 1032, 1034, 1035, 1040, 1048):
`${SOS_LOCAL}/nonbcd/<pmid>/<plscriptid>/<representative_dceid>`
- Note, details of processing are contained in a log file named “out.pline” under the “sosexec/..” subdirectory in each of the above directories.

1.7. Output Sandboxed Data Products

1.7.1. Science (and pre-processed/intermediate calibration) BCDs

`${SOS_ARCHIVE}/proc/full/<campaign>/bcd/<pao>/<reqkey>/<channum>/<expid>/<dcenum>/<plscriptid>/<fos_ver>/<sos_ver>/`

- Sandbox contents SUR-science threads only (pipeNum 405):
`bcd_fp.fits`
`bcd_mask_fp.fits`
`bcd_uncert_fp.fits`
`bmask_diff_fp.fits`
`bmask_slope_fp.fits`
`cdf_list_fileId.txt`

```
diff_fp.fits
diff_uncert_fp.fits
ptg/
qa/
raw_tranhead_fp.fits
rmask.fits
slope_fp.fits
slope_uncert_fp.fits
sosexec/
```

- Sandbox contents for RAW-science threads only (pipeNum 406):

```
bcd_fp.fits
bcd_mask_fp.fits
bcd_uncert_fp.fits
cdf_list_fileId.txt
dmask_fp.fits
ptg/
qa/
raw_tranhead_fp.fits
sosexec/
```

1.7.2. Calibration Ensemble Products

- Flats (plscriptId 1016 or 1032 or 1034):

```
${SOS_ARCHIVE}/proc/full/<campaign>/cal/auto/<pao>/<reqkey>/flat/<chann
um>/<ensid>/<sos_ver>/
```

```
cal/
cdf/
ensemble_info.txt
flatfield.fits
flatfield_cmask.fits
inputlist_dmask_flatfield
inputlist_flatfield
qa/
sosexec/
```

- Darks (plscriptId 1001):

```
${SOS_ARCHIVE}/proc/full/<campaign>/cal/auto/<pao>/<reqkey>/darksur/<ch
annum>/<ensid>/<sos_ver>/
```

```
cal/
cdf/
darkest_surl.fits
darkest_surl_cmask.fits
darkest_surl_uncert.fits
ensemble_info.txt
inputlist_darkest
inputlist_dmask_darkest
inputlist_noise_darkest
qa/
sosexec/
```

- Non-linearity (plscriptId 1011)

```
${SOS_ARCHIVE}/proc/full/<campaign>/cal/auto/<pao>/<reqkey>/linr/<chann  
um>/<ensid>/<sos_ver>/
```

```
cal/  
cdf/  
ensemble_info.txt  
inputlist_dmask_lincal  
inputlist_lincal  
inputlist_noise_lincal  
lincal.fits  
lincal_cmask.fits  
qa/  
sosexec/
```

1.7.3. Post-BCD Products

- Fiducial Image Frame (plscriptId 1040):

```
${SOS_ARCHIVE}/proc/full/<campaign>/bqd/auto/<pao>/<reqkey>/reffrm/<en  
sid>/<sos_ver>/
```

```
FIF.tbl  
cdf_list_fileId.txt  
ensemble_info.txt  
sosexec/
```

- Mosaic and ancillary files (plscriptId 1048):

```
${SOS_ARCHIVE}/proc/full/<campaign>/bqd/auto/<pao>/<reqkey>/coad/<chan  
num>/<ensid>/<sos_ver>/
```

```
Rmask/  
cal/  
cdf/  
cdf_list_fileId.txt  
ensemble_info.txt  
extract.tbl  
extract_raw.tbl  
mosaic.fits  
mosaic_cov.fits  
mosaic_detect.tbl  
mosaic_unc.fits  
bcd_median.fits  
bcd_median_uncert.fits  
qa/  
sosexec/
```

1.8. Complete AOR-suite in S13 Downlink Segment-Test System

The AORs listed in Section 1.5 above are just a sampling of all the AORs that were actually tested on the downlink segment-test system. This is to simplify/assist the I&T procedure

in selecting AORs from each type of mode. Below is the complete list of AORs that were ingested, ensembles created (in sodb_dnl5), processed and archived successfully on the segment test system.

>>>SUR_SCI_PHT

Ingest-MIPS-1 9458176 1021:1030:1035:1040:1048 (30 dces; Used for
mirror-wobble ptg correction)
****data ingested, ensembles/manifest created, processed

>>>SUR_SCI_PHT

Ingest-MIPS-1 5380352 1021:1030:1035:1040:1048 (58 dces)
****data ingested, ensembles/manifest created, processed

>>>SUR_SCI_PHT

Ingest-MIPS-1 5070336 1021:1030:1035:1040:1048 (16 dces)
****data ingested, ensembles/manifest created, processed

>>>SUR_SCI_PHT

Ingest-MIPS-1 6582272 1021:1030:1035:1040:1048 (72 dces)
****data ingested, ensembles/manifest created, processed

>>>SUR_SCI_PHT

Ingest-MIPS-1 4682496 1021:1030:1035:1040:1048 (68 dces)
****data ingested, ensembles/manifest created, processed

>>>SUR_SCI_PHT

Ingest-MIPS-1 6772224 1021:1030:1035:1040:1048 (120 dces: 4 ensemble sets)
****data ingested, ensembles/manifest created, processed

>>>SUR_SCI_SLOW_SCAN:

Ingest-MIPS-1 12747776 1020:1030:1035:1040:1048 (177 dces)
****data ingested, ensembles/manifest created, processed

>>>SUR_SCI_SLOW_SCAN:

Ingest-MIPS-1 10711808 1020:1030:1035:1040:1048 (666 dces)
****data ingested, ensembles/manifest created, processed

>>>SUR_SCI_MEDIUM_SCAN:

Ingest-MIPS-1 3866624 1020:1030:1035:1040:1048 (XFLS: 1000 dces)
****data ingested, ensembles/manifest created, processed

>>>SUR_SCI_MEDIUM_SCAN:

Ingest-MIPS-1 5560576 1020:1030:1035:1040:1048 (808 dces)
****data ingested, ensembles/manifest created, processed

>>>SUR_SCI_FAST_SCAN:

Ingest-MIPS-1 7747072 1020:1030:1035:1040:1048 (397 dces - one leg!)
****data ingested, ensembles/manifest created, processed

>>>MIXED_SUR_SCI + RAW_SCI_TPM:

Ingest-MIPS-1 11801344 1029:1037:1030:1040 (12 dces)
****data ingested, ensembles/manifest created, processed

>>>RAW_SCI_PHOT:

Ingest-MIPS-1 7120384 1028:5001:1030 (20 dces)
****data ingested, ensembles/manifest created, processed

>>>RAW_SCI_TPM:

Ingest-MIPS-1 9353216 1029:5001:1030 (12 dces)
****data ingested, ensembles/manifest created, processed

>>>FLATCAL PHOT:

Ingest-MIPS-1 7141888 1031:1032:1021:1030:1040:1048 (64 dces: 3 ensembles:
flat, fif, mosaic)
****data ingested, ensembles/manifest created, processed

>>>FLATCAL PHOT:

Ingest-MIPS-1 13296640 1031:1032:1021:1030:1040:1048 (416 dces: flat, fif,
mosaic)
****data ingested, ensembles/manifest created, processed

>>>FLATCAL SCAN:

Ingest-MIPS-1 12882432 1033:1034:1020:1030:1040:1048 (888 dces: 3 ensembles:
flat, fif, mosaic)
****data ingested, ensembles/manifest created, processed

>>>LINCAL + PIPE0 w/ptg:

Ingest-MIPS-1 6763264 1010:1011:5001:1030 (60 dces: 1 ensemble)
****data ingested,

>>>SUR DARK:

Ingest-MIPS-1 7161600 1000:1001:1030 (50 dces: 2 ensemble sets)
****data ingested, ensembles/manifest created, processed

=====