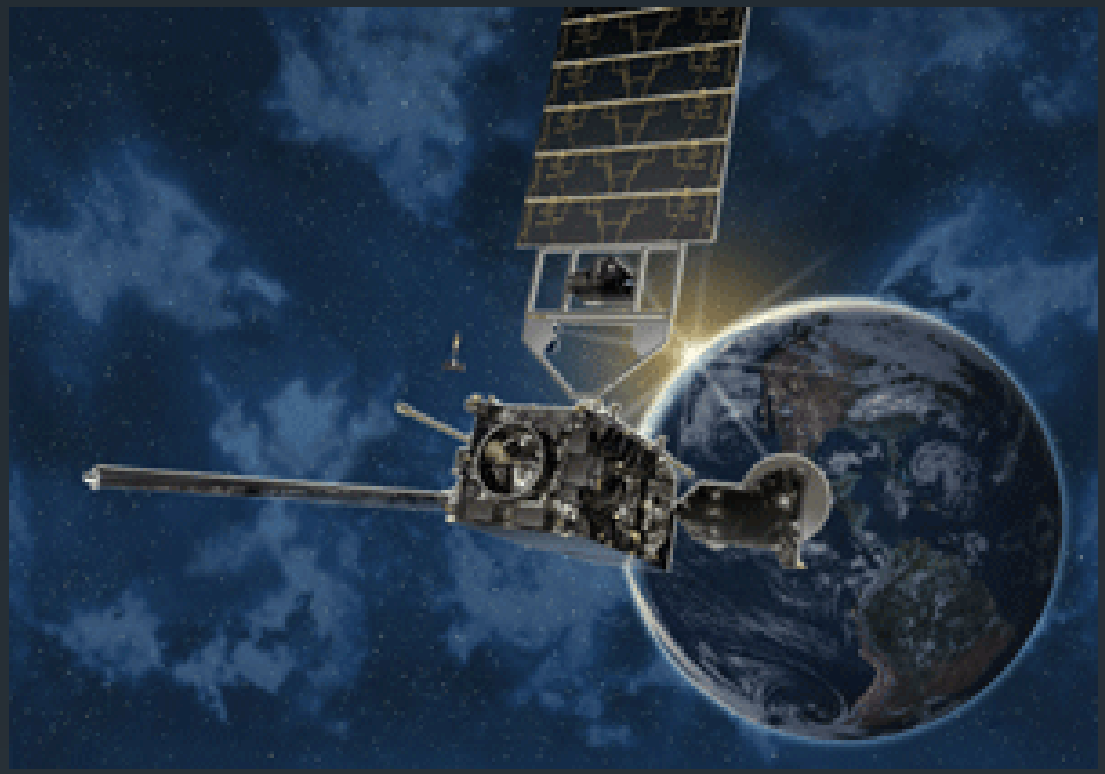


SDI (Satellite Data Ingestor)

2015 McIDAS Users Group Meeting

June 8, 2015

THE UNIVERSITY of WISCONSIN MADISON

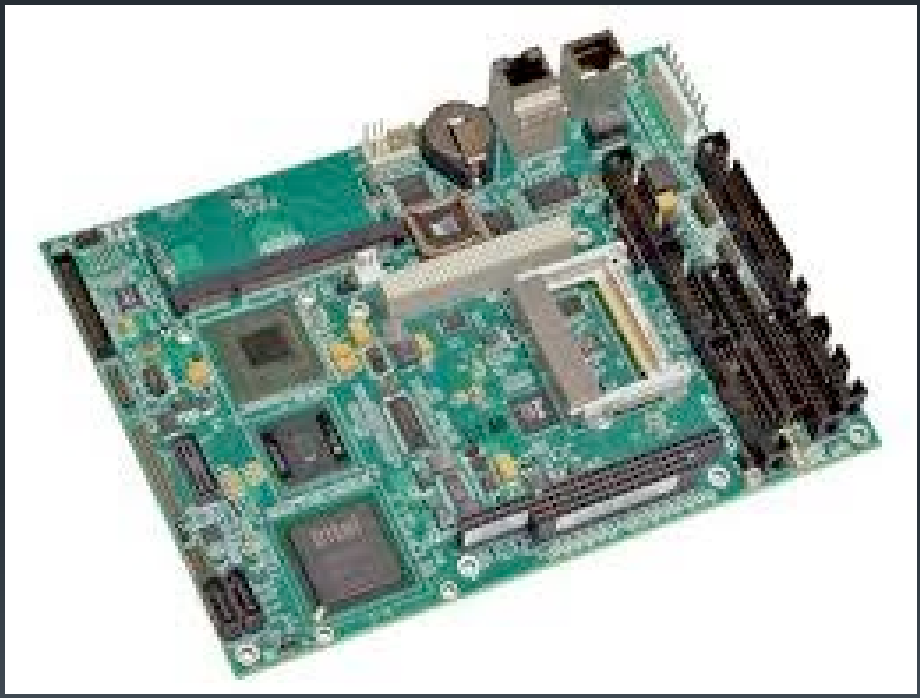
SSEC

Overview

- SDI 104
  - Hardware configuration
  - Software configuration
  - Satellites signals
- Next generation SDI
  - Hardware Configuration
  - Software configuration
  - Satellites signals

SDI 104
Hardware Configuration

- PC/104-Plus
- LittleBoard 735
- 1 GHz CPU
- Disk: 160 Gbyte IDE
- Boot from compact flash
- Ethernet: Up to 1G/s
- Connectors for monitor and keyboard
- Mounted in 2U rack box



Hardware Configuration

Data rates tested up to 40 Mbits/s

- Connectors:
  - D15P
  - BNC
- Configuration:
  - Single ended (TTL)
  - RS422 (differential)
- Data types
  - NRZ-L, NRZ-M, NRZ-S
  - Jumper configurable

Software Configuration

- Knoppix 6.7.1 (Linux 3.0.41)
  - Up-to-date security
  - Compatible with old binaries
  - Upgrade to Knoppix for older SDI-104 systems running DSL as needed
  - Can be configured as a standalone ingestor/server, or write data to an external disk (via NFS, for example)

Event Notification

- Notifications are dependent on signal type:
  - Image start (not for POES)
  - Image end (not for GVAR Imager)
- Three types of notifications:
  - Send an email
  - Write notification to a file (log messages)
  - Run a program or script

SDI-104 Status for Current Satellites

- GVAR: up-to-date for entire series
- MTSAT: up-to-date for both satellites
  - May want to add swap space if running DSL (noisy data)
- POES AVHRR:
  - Up-to-date for all satellites
  - Unable to test direct reception, although a system is running at NWS Honolulu

(Original) SDI Sunset

The Original SSEC SDI **was sunset on 31 December 2013**

- We are not able to provide nor recommend hardware components if these would fail
- The operating system used is an unsupported version of Solaris, which has been lacking security updates for several years.

SDI … the next generation

Introducing the SDI-SE

SDI-SE Hardware Configuration*

- Dell PowerEdge R430 servers
- 12 core, 2.5 GHz Intel Xeon Processor
- 64 GB Ram
- 6 1-TB disks in RAID-6
- 10 Gb Ethernet and 1 GB Ethernet
  - No more clock and data
  - Everything over ethernet

(no SSEC designed hardware components)

*preliminary

SDI-SE Software Configuration*

- CentOS 6.x
- Software and security updates via yum
  - Repository at UW SSEC
- McIDAS-X ADDE servers
- CSPP-GEO ingest software
- RabbitMQ event notification

*preliminary

SDI-SE Data Access*

- ADDE
- FTP

*preliminary

SDI-SE Event Notification*

- RabbitMQ
  - Built in exchange server
  - Start and End Events
  - No more email events
  - Remote workstations will be able to connect to the Exchange server and receive desired events
  - May update SDI-104 to use RabbitMQ in the future

*preliminary

SDI-SE Supported Satellites *

- GOES-R series
  - Ingest handled by CSPP GEO
  - Instruments
    - ABI (Advanced Baseline Imager)
      - Follow/tracking
    - GLM (Geostationary Lightning Mapper)
    - MAG (Magnetometer)
    - SEISS (Space Environment In-Situ Suite)
    - SUVI (Solar Ultraviolet Imager)
    - EXIS (Extreme Ultraviolet and X-ray Irradiance Sensors)
    - **No Level-2 processing on the SDI-SE**
- HimawariCast (under consideration)
- GVAR (under consideration)

*preliminary

What is CSPP – GEO?

- Community Satellite Processing Package for Geostationary Data
- NOAA sponsored project being developed at UW SSEC
- The software will be capable of processing GOES Rebroadcast (GRB) data received from the next-generation GOES-R satellite. Level 2 Advanced Baseline Imager (ABI) products will be generated by state-of-the-art science algorithms developed under the GOES-R Algorithm Working Group project.
- Software is freely available and is distributed as self-contained binary packages built for 64-bit Linux systems.

CSPP – GEO initial product suite

- Cloud mask
- Cloud phase
- Cloud type
- Cloud top height
- Cloud top temperature
- Cloud top pressure
- Cloud 11 µm emissivity
- Cloud visible optical depth
- Cloud effective radius
- Cloud liquid water path
- Cloud ice water path
- Probability of Marginal Visual Flight Rules (MVFR)
- Probability of Instrument Flight Rules (IFR)
- Probability of Low Instrument Flight Rules (LIFR)
- Low cloud geometric thickness

End