PANSY Meteor Extension Testing in Shigaraki

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UPS

- Problems with battery upon arrival at Shigaraki
- **Actions:**
  - Troubleshoot UPS battery issue
  - Obtain replacement UPS if found faulty
  - or decide to operate without UPS
  - Ensure the the bios is setup to restart after power failure

UPS doesn't stop beeping, and the power drops in 10 minutes after turning on.
It seems the battery is dead.
For the test purpose, we will be able to use AC 100V directly at Shigaraki,
but what should we do for Syowa?

A: This is for Nico to decide.

If no UPS is used at Syowa, we need to make sure that the PC starts up after power failure

A: No 10 MHz ref needed. The GPS clock inside the octoclock provides the reference.

Either one of antennas is fine

Do we have a long enough cable?

GPS

- GPS antenna obtained a lock without issues and the receivers were in sync
- No test of GPS lock is currently in the startup script or monitoring scripts
- **Actions**:
  - Add service to track GPS status
  - Block startup until lock achieved
  - Restart receiver is loss of lock is detected
  - Add check of external/internal switch position
  - Check that cable is long enough for PANSY
  - Coordinate with PANSY site staff placement of
  - Provide installation instructions with cabling and switch positions

```
(base) radar@syowa-meteor:~/src/pansy_receiver$ ./test_gps
[INFO] [UHD] linux; GNU C++ version 10.4.0; Boost_107800; UHD_3.15.0.HEAD-release
[INFO] [OCTOCLOCK] Opening an OctoClock device...
[INFO] [OCTOCLOCK] Detecting internal GPSDO...
[INFO] [GPS] Found an internal GPSDO: LC_XO, Firmware Rev 0.929b
[WARNING] [GPS] update_cache: Malformed GPSDO string: EEPROM Write Failed!
[WARNING] [GPS] update_cache: Malformed GPSDO string: EEPROM Write Failed!
[INFO] [OCTOCLOCK] Detecting external reference...false
[INFO] [OCTOCLOCK] Detecting switch position...Prefer internal
[INFO] [OCTOCLOCK] Device is using internal reference
GPSDO detected: true
GPS lock status: locked
GPS epoch time: 1727387469 seconds
```

Please give me instructions how to connect these LAN ports.

Internet (eno1)

Octoclock ethernet

Configuration file:

```
(base) radar@syowa-meteor:~/src/pansy_receiver$ sudo cat /etc/
netplan/01-network-manager-all.yaml
# Let NetworkManager manage all devices on this system
network:
  version: 2
  renderer: networkd
  ethernets:
    eno1:
      #addresses:
      #   - 192.108.71.151/24
      #nameservers:
      #   search: [iap-kborn.de]
      #   addresses: [192.108.71.66,195.37.145.56]
      #routes:
      #   - to: default
      #     via: 192.108.71.1
      dhcp4: yes
    ens6f0:
      addresses:
        - 192.168.11.1/24
    ens6f1:
      addresses:
        - 192.168.12.1/24
    ens6f2:
      addresses:
        - 192.168.13.1/24
    ens6f3:
      addresses:
        - 192.168.14.1/24
    ens4f0:
      addresses:
        - 192.168.10.1/24
    #ens4f1:
    #ens4f2:
    #ens4f3:
```

```
> sudo netplan try
> sudo netplan generate
> sudo netplan apply
```

Cabling

- This is the realized cabling
- Worked perfectly
- I used ethtool -i to investigate which port was connected to the octoclock
- **Action**: provide the picture from previous page with the installation instructions at PANSY

Frontend

- The frontend has more than enough gain as near saturation
- **Actions:**
  - Come up with new receiver attenuation setting
  - Provide instructions on front switch positions and cabling upon installation at PANSY

Turn on switches for row 1

RF Testing

- Testing with interleaved ST and M modes, M mode, and ST mode
- Ground clutter and airplane echoes are clearly seen in the overview plots
- There is a offset in timing, which is to be expected and will be taken into account in the analysis of the data
- **Actions:**
  - Develop code to detect mode and mode sequence start
  - Analyze for meteor echoes. There should be several specular trail echoes that can be used for test analysis.
  - Develop code to crop meteor detections

Example Raw Voltage

test_data/mixmode
Time (us)
0
200
400
600
800
1000
1200
1400
Time (s)
0
100
200
300
400
500
600
700
800
Power (dB)
0
5
10
15
20

test_data/mmode
Time (us)
0
200
400
600
800
1000
1200
1400
Time (s)
0
100
200
300
400
500
600
Power (dB)
0
5
10
15
20

test_data/stmode
Time (us)
0
200
400
600
800
1000
1200
1400
Time (s)
0
200
400
600
800
1000
Power (dB)
0
5
10
15
20