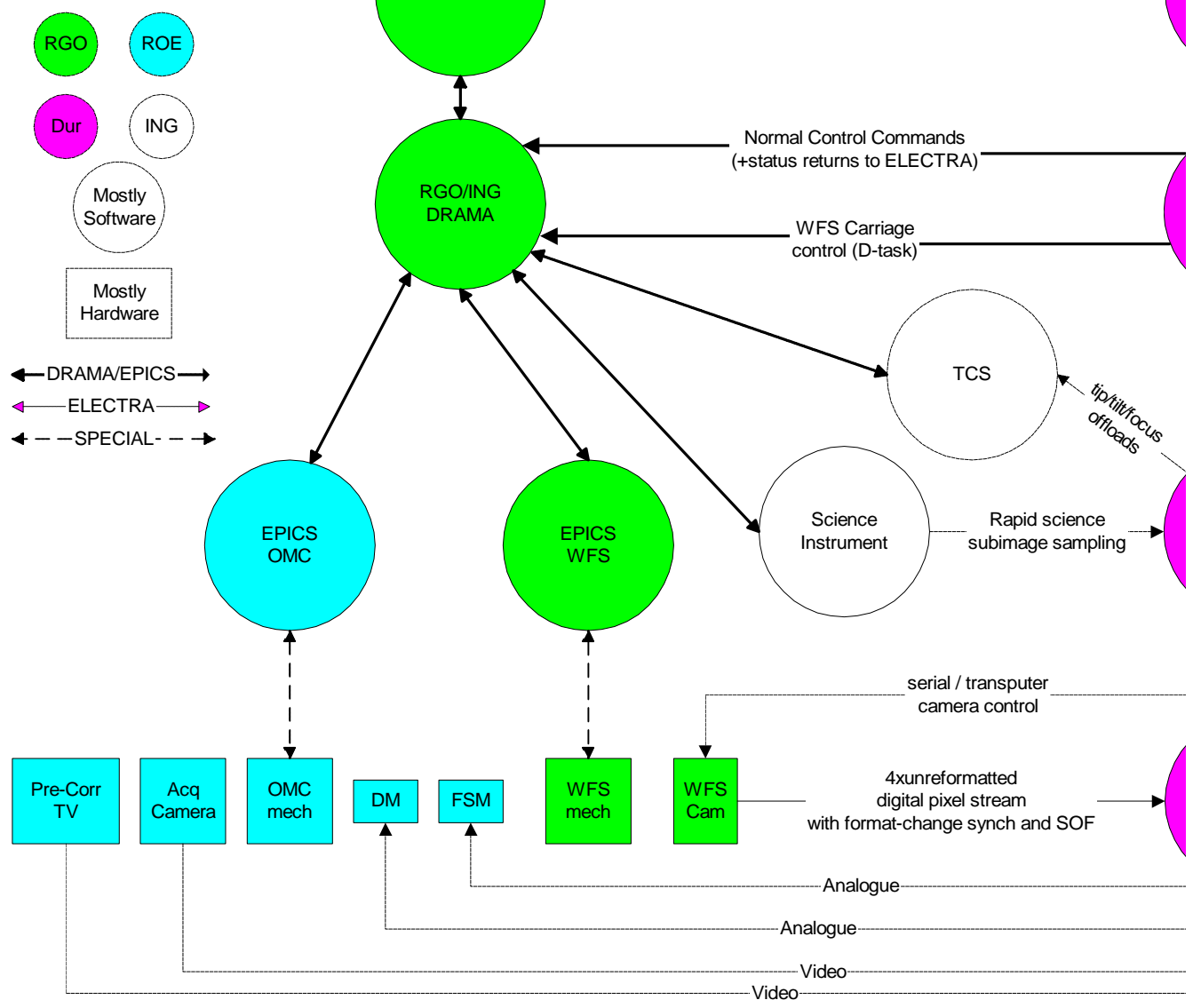


NAOMI/ELECTRA
Interface Schematic
AOW/SYS/RMM/6.0/Feb97/iguide



Internal document number AOW/SYS/RMM/7.0/01/97/NAOMI Electronic and Software Interfaces
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Notes:

1. These are indicative data routes only. They may be changed by mutual agreement between work package groups and Project Management.
2. Data rate and format and signal conditioning and cabling requirements are products of the work packages on each side of the interface and must be presented in Interface Control Documents for system review. Data rates are derivable from the NAOMI Technical Description [see <http://aops.dur.ac.uk>] and are also given in the software User Requirements Document and Work Package Description specifications (see BSCW).
3. Where software is involved, error budget allocations to latencies are given in the Work Package Descriptions and the derived latencies are given in the software User Requirements Documents. They should be checked independently and verified by prototyping for system review.

1. OMC to/from RGO/ING

All mechanism control via DRAMA/EPICS except DM and FSM which are controlled directly from ELECTRA only.

2. OMC to/from ELECTRA

No direct control of mechanisms via ELECTRA except:

1. DM controlled via analogue signals from ELECTRA RTCS (strain gauge analogue returns)
2. FSM controlled via analogue signals from ELECTRA RTCS
3. Pre-Corr and Acq camera signals provided as video.

3. OMC to/from WFS

No direct connections

4. WFS to/from RGO/ING

All mechanism control via DRAMA/EPICS. WFS camera control and data connect directly to ELECTRA only.

WFS field curvature control and ADC motions are generated inside WFS EPICS. The external configuration interface is via EPICS/DRAMA from RGO/ING.

5. WFS to/from ELECTRA

1. WFS camera data to ELECTRA via 4 digitised unreformatted pixel data streams (one from each port). Format change synchronisation and Start of Frame signalling mechanisms are required.
2. WFS camera control via a serial line from ELECTRA

6. ELECTRA to/from RGO/ING

1. Principle connection for ELECTRA-initiated control via C-task from ELECTRA sequencer
2. Secondary connection for WFS carriage control from ELECTRA via monitor on D-task. This is used for WFS-WFS carriage control loop, laser WFS focus control (upgrade).

7. Science to/from ELECTRA

1. Exposure and windowing control from ELECTRA via RGO/ING

2. Data and synchronisation return to ELECTRA via FAST route. This is used for automatic IR path calibration.

8. ELECTRA to/from TCS

Two sets of signals are involved:

Tip/tilt and focus offloads from the ELECTRA real-time systems to the TCS. The tip-tilt offloads prevent the FSM from overranging and remove semi-static tip/tilts from the FSM. This mechanism permits dithering and offsetting without opening the WFS/DM and WFS/FSM control loops and with minimal pupil shifting. The focus offloads prevent overranging on the DM and allow semi-static focus signals (which would consume dynamic range) to be removed.