

Software Control for FTLRS, the French Transportable Laser Ranging Station

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*FTLRS in Corsica during
Jason-1 calibration campaign - 01 to 09/2002 -*

Abstract: *The FTLRS is now in a new version, specially designed for the actual mission (Calibration campaign in Corsica for the oceanic satellite JASON-1); Embedded real time software control is managed by a remote LINUX station. During tracking, a lot of command is now available (laser power setting, telescope tracking, fast swapping between two "near" satellites like Jason/Topex, ...). Automatic detection of valid echoes is achieved ; many hardware survey and test have been added during tracking phase. It is now possible to operate on FTLRS from our Grasse facilities, for software maintenance, improvement test and eventually for tracking (after on site station setup by an operator).*

FTLRS Control Synoptic

- ▶ a LINUX station for GUI
- ▶ a VME system for real time control

Main Control

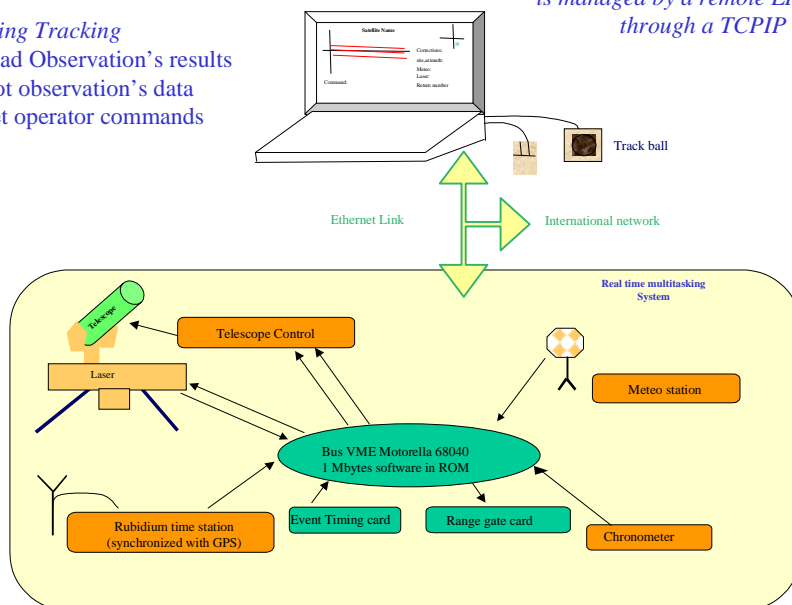
Before tracking

- Verify Station hardware
- Send previsions

During Tracking

- Read Observation's results
- Plot observation's data
- Get operator commands

*Embedded real time software control
is managed by a remote LINUX station
through a TCP/IP link*

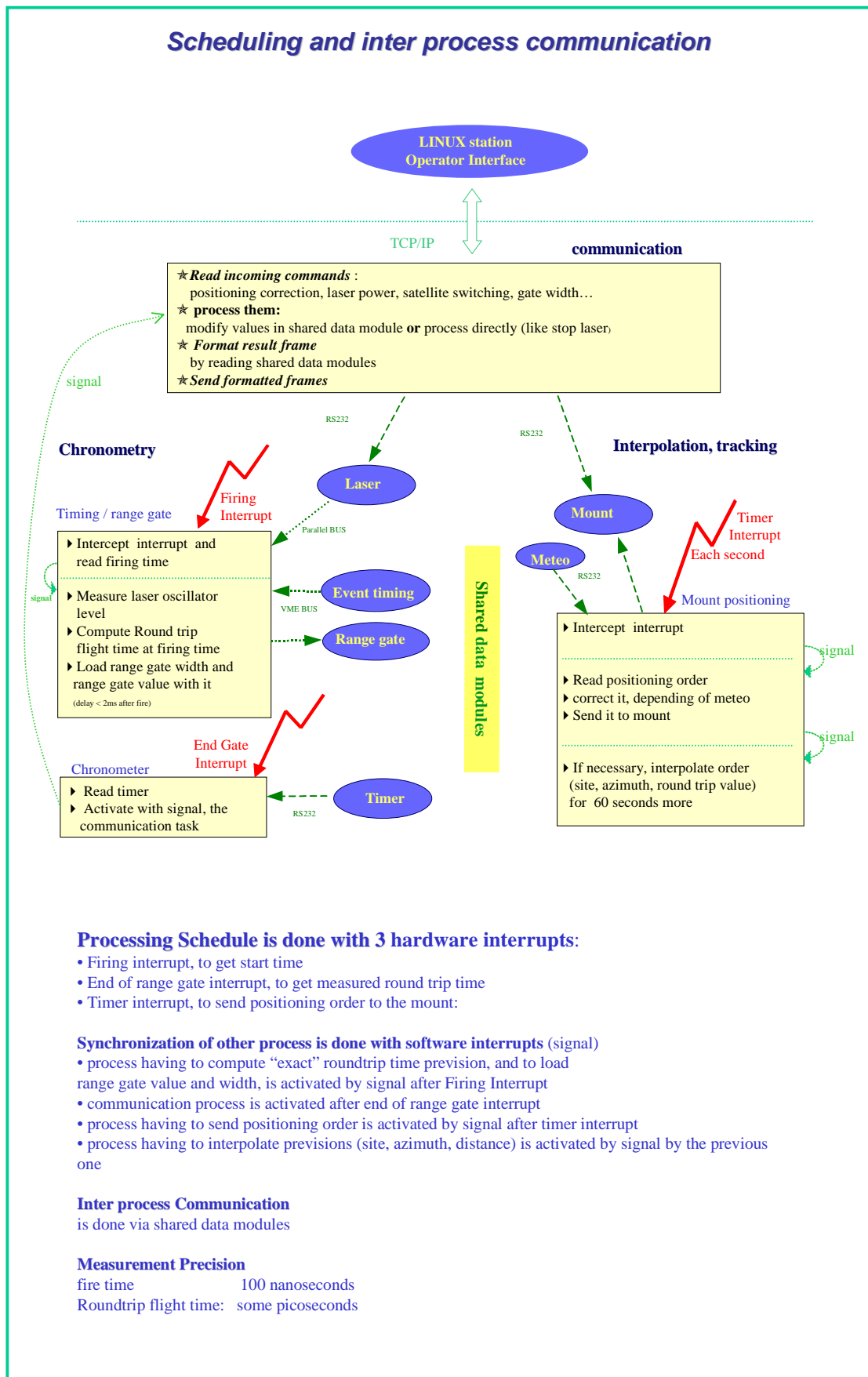


- ▶ **An automatic Control for** meteo, GPS, laser, tracking, container temperature,
- ▶ **A commands acquisition interface** to modify or set laser power, tracking, bias,...
- ▶ **A fast switching capability (less 10 sec.)** between "near" satellites: Topex/Jason, GraceA/GraceB
- ▶ **An automatic detection of valid echoes**

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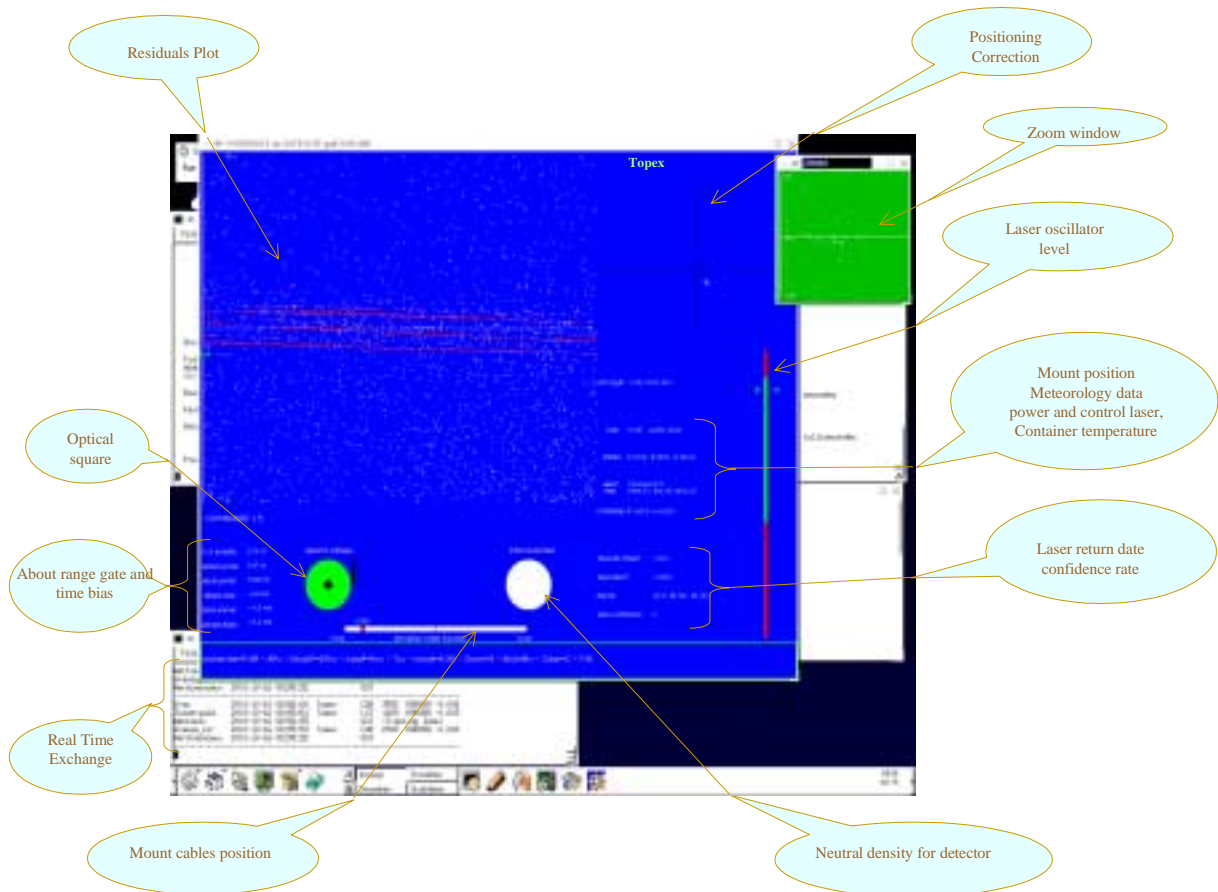
The French Transportable Laser Ranging Station

Scheduling and inter process communication



The French Transportable Laser Ranging Station

Operator control screen during a daylight topex tracking



This Motif GUI, written in C is very simple to use:

- Valid returns are plotted in red color with a more or less acute bell , depending on time bias continuity.
- Time bias is computed in real time and adjusted if necessary.
- Hardware control is done with blinking value if not OK (too hot, ...)
- A lot of commands are available: to modify mount positioning (tracking ball), range gate width, bias in time and range, laser power (Fkey), to switch from one satellite to an other (with near trace), ...