

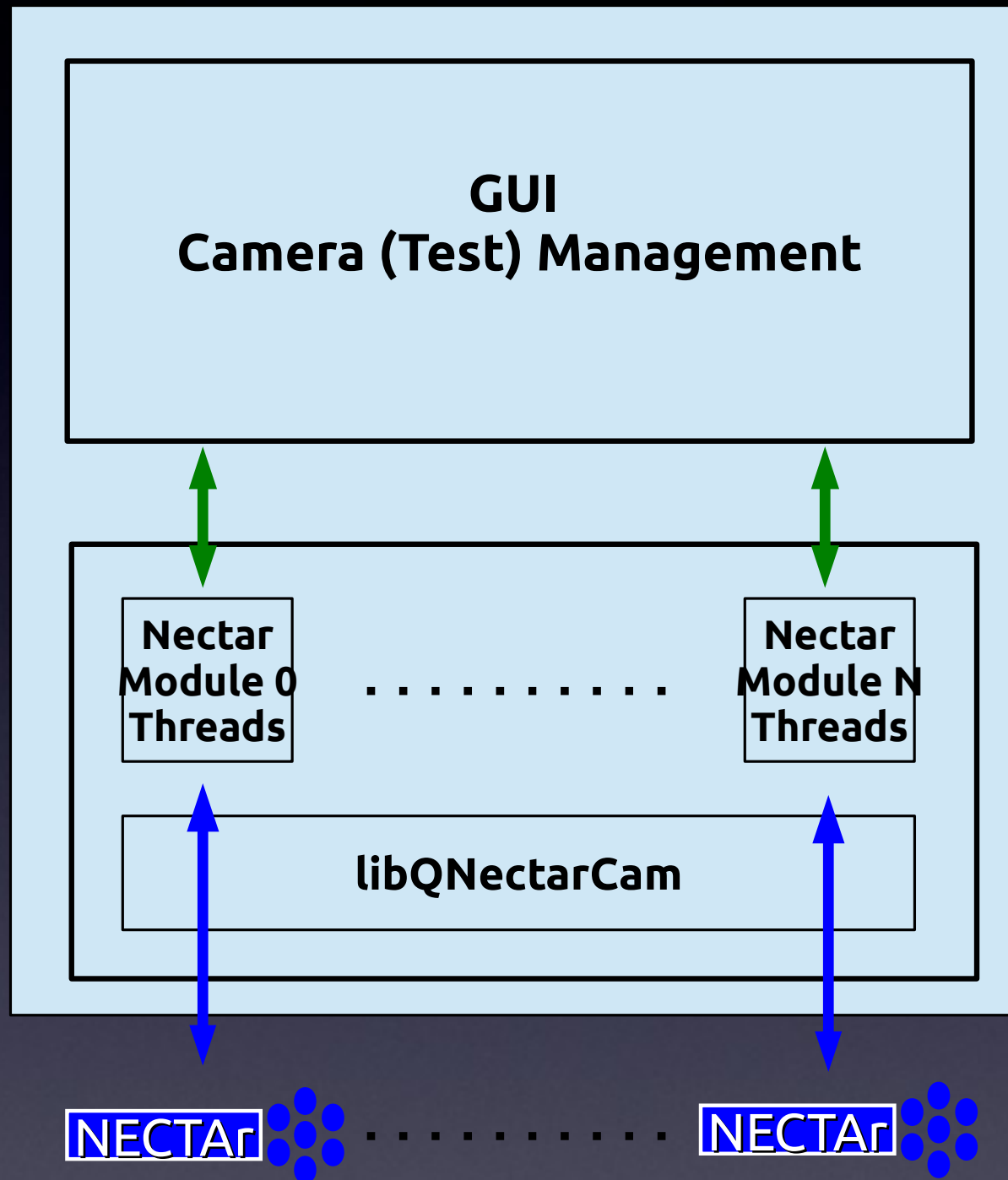
Softwares Development In CTA project

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Nectar Module Test Software

- We are developing a GUI for Nectar Module and Camera Test
- Manage one or multiple nectar Modules
 - All the Nectar Module are described in one xml file
- Very Simple Real time Data Display
 - Timeline and distributions real time plots for samples and charge mode
- PLUGIN Management
 - DACLs calibration plugin
 - Firmwares update plugin

Camera Test Software



Main Control panel

The screenshot shows a software window titled "Control" with a "Files" menu. The interface is organized into several sections:

- Drawer Number:** A dropdown menu currently showing "0".
- Status:** A list of checkboxes for different modules: ALL (checked), NF (checked), ND (checked), VMC (checked), DAQL (checked), REG (checked), SLC (unchecked), and DAQ (unchecked).
- Buttons:** A large "Slow Control" button.
- Daq Configuration:** A section containing:
 - Nf:** A dropdown menu showing "16".
 - Mode:** A dropdown menu showing "Charge".
 - Buttons:** "Send Daq", "Start", and "Start All".
 - Duration (ms):** A checkbox (unchecked) and a dropdown menu showing "1000".
 - Counter:** A checkbox (unchecked) and a dropdown menu showing "1000".

- Open and save xml camera description file
- See "Status" of any Nectar Module
- Set Main DAQ Parameters settings
- Set DAQ Data Folder destination
- Start and Stop Data Acquisition For One Or Many Nectar Module

Nectar Module Parameters Panel

The screenshot displays the 'Slow Control' window for the Nectar Module Parameters Panel. The 'Nectar Drawer Number' is set to 0. The 'Trigger' tab is active, showing the following configuration:

L0 Trigger

Line Index	Attenuation	Clipping	Delay
0	FFF	0	0.25
1	FFF	1	0.50
2	FFF	2	0.75
3	FFF	3	1.00
4	FFF	4	2.00
5	FFF	5	3.00
6	FFF	6	4.00
7	FFF	7	4.00

Buttons: Init L0, Send All (per column), Send All L0

L1 Trigger

Reset + Internal Reference SetUp

Mode0 | L1 Dac #0: 1F0 | L1 Dac #1: 1F0

Send

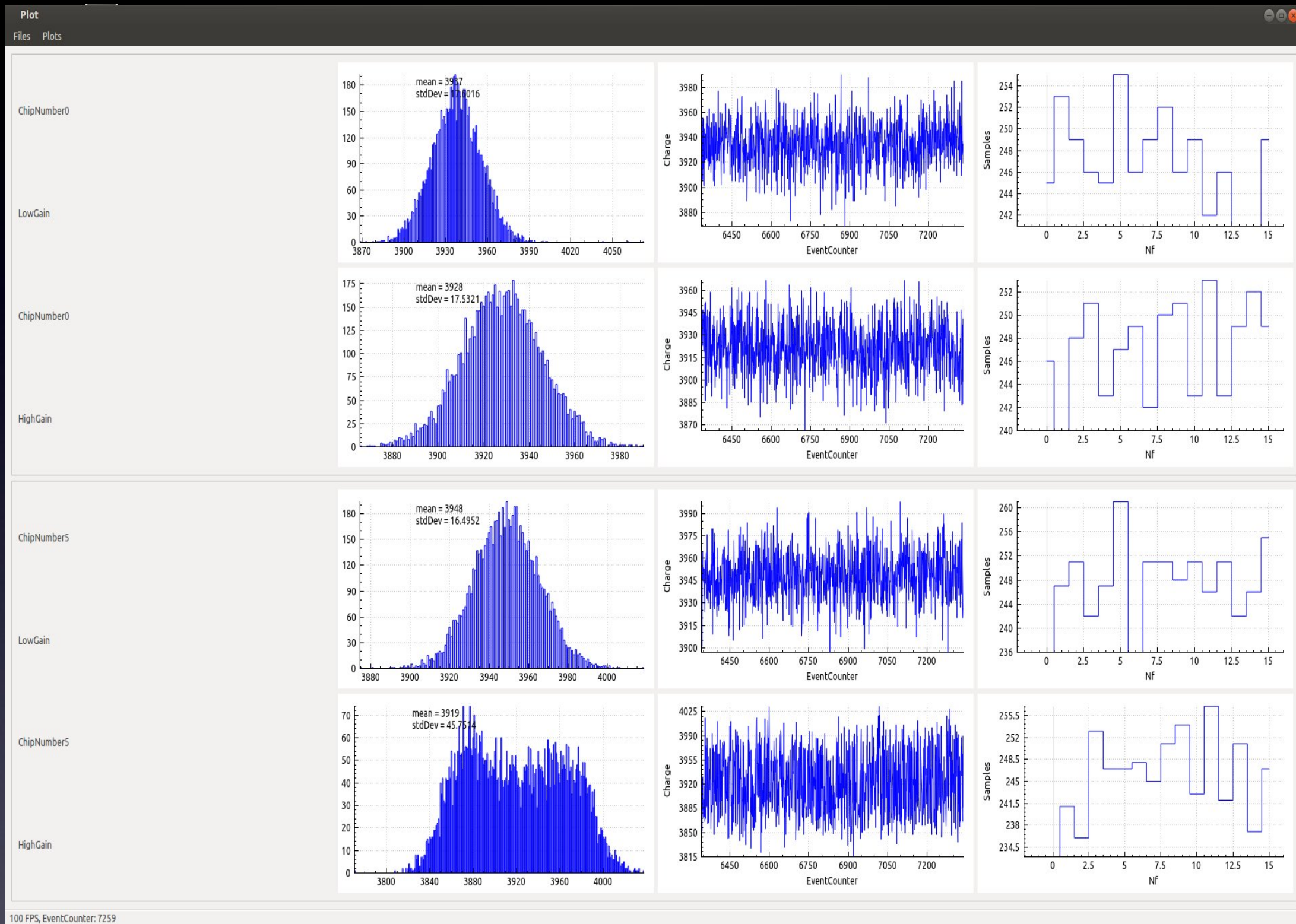
CntrlTrig

A0 A1

Send CntrlTrig

Example of Nectar Module Parameter Panel
Trigger L0 and L1 Configuration

Signals Display Panel



Timeline and distributions real time plots for samples and charge mode
For Nectar Chip Channel 0 and 5

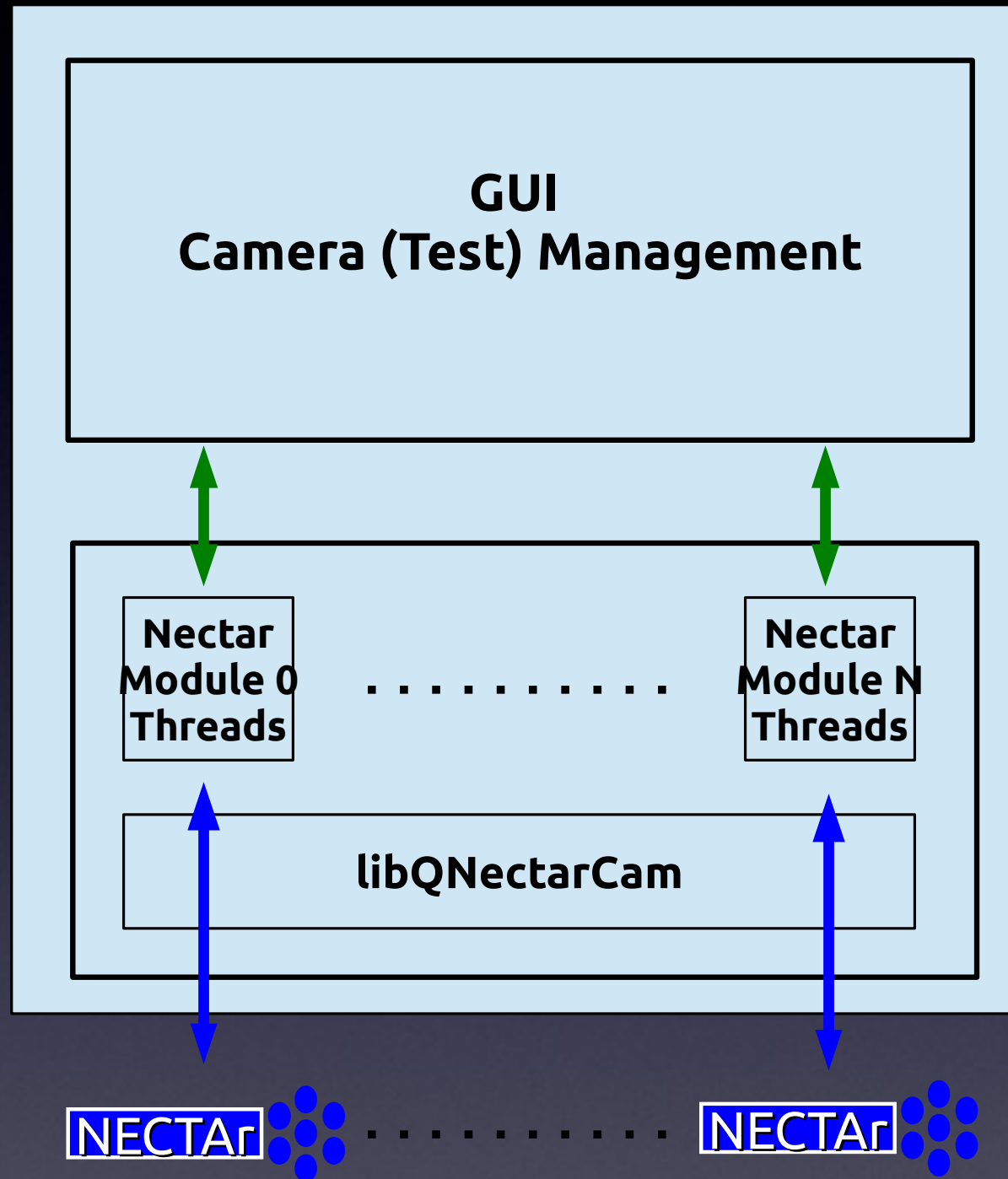
Nectar Module Parameters Panel

The screenshot shows a software interface titled "Slow Control" with a "Nectar Drawer Number" dropdown set to 0. Below it are tabs for "Main", "Trigger", "Trigger Expert", and "Dacl", with "Dacl" selected. A "Nectar Chip Number" dropdown is also set to 0. The main area contains a table for configuring DACLs for 16 lines (Line Index 0 to 15). Each row has three columns: "Low", "High", and "Dacl". The "Low" and "High" columns contain spinners with numerical values, and the "Dacl" column contains a text field with a hexadecimal address. At the bottom, there are "Send" and "SendAll" buttons.

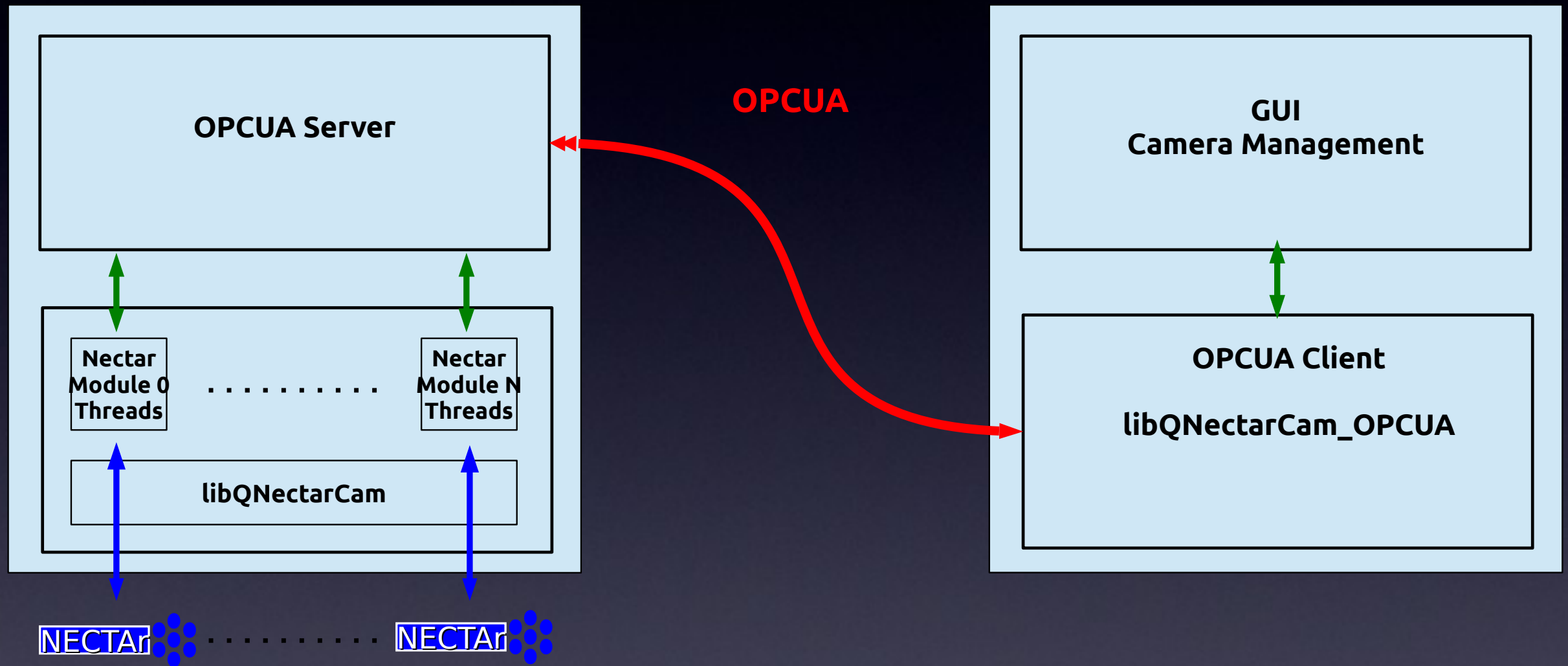
Line Index	Low	High	Dacl
0	18	4	C282C989
1	6	30	CF8FC383
2	12	20	CA8AC686
3	42	14	C787D595
4	30	18	C989CF8F
5	6	36	D292C383
6	12	28	CE8EC686
7	24	0	8080CC8C
8	6	34	D191C383
9	34	12	C686D191
10	24	20	CA8ACC8C
11	16	8	C484C888
12	40	20	CA8AD494
13	24	26	CD8DCC8C
14	22	10	C585CB8B
15	22	22	CB8BCB8B

Example of Nectar Module Parameter Panel
Per Nectar Chips DACLs Parameters Configuration

GUI Camera Software



OpcUa Server



FE SLOW CONTROL SERVER
IS
An OPCUA server

FE SLOW CONTROL GUI
IS
An OPCUA client

OpCua Server

The screenshot displays the OpCua Server software interface with several key components:

- Project View:** Shows a project structure with folders for Servers, Documents, and Data Access View. The selected server is 'UaServerCpp@lpnlp122 - Basic128Rsa15 - Sic'.
- Data Access View Table:** A table listing data points from the server.

#	Server	Node Id	Display Name	Value	Datatype	Source Timestamp	en
1	UaServerCpp...	NS3 String N...	ModuleNumber 0		UInt32	18:34:09.576	18
2	UaServerCpp...	NS3 String N...	ModuleNumber 1		UInt32	18:34:14.837	18
3	UaServerCpp...	NS3 String N...	Nds	{102,100,100,100,100,100,...	UInt32	18:34:22.604	18
4	UaServerCpp...	NS3 String N...	Nds	{100,100,100,100,100,100,...	UInt32	18:34:34.128	18
- Address Space:** A hierarchical tree view showing the structure of the address space. The 'nectarCam' object is selected, showing its sub-objects: NectarFrontEnd_000, NectarFrontEnd_001, Cdr1, Cdr2, ModuleNumber, Nds, State, Vmc, and xmlFile.
- Attributes:** A panel showing the attributes of the selected node. The 'Value' attribute is expanded, showing fields like SourceTimestamp, SourcePicoseconds, ServerTimestamp, ServerPicoseconds, and StatusCode.
- References:** A panel showing references to other nodes. A reference is listed with 'HasTypeDefin...' as the reference and 'BaseDataVariableT...' as the target.
- Log:** A panel at the bottom left showing a log of events. Two entries are visible, both from 'DA Plugin' at '22/11/14 18:...' on the 'UaServer' server.