

ULTRIPROC AND ULTRIPROC-3DLUT LICENSING

Introduction

Ultriproc and Ultriproc-3DLUT are powerful sets of software-licensed tools for Ultrix featuring procamp adjustments, RGB color correction, and a range of SDR to/from HDR conversions. This application note aims to clarify the specific rules for deploying these licenses within Ultrix. It will detail the structured approach to applying Ultriproc licenses across Ultrix I/O cards and ports, ensuring users can harness the full power of these tools effectively within their workflows.

Ultriproc and Ultriproc-3DLUT Licenses

Ultriproc and Ultriproc-3DLUT are per-port licenses with the following common features:

- Procamp: black offset, gain, saturation, hue
- RGB color correction
- Color space conversion: BT 709 ↔ BT 2020
- SDR ↔ HDR conversion

Ultriproc offers 1D/direct-mapping SDR↔HDR conversion, while Ultriproc-3DLUT replaces this capability with a 33-point tetrahedral 3D LUT processing engine using pre-loaded NBCU and BBC LUTs (including LUTs with scene light).

Also available are Ultriproc-16 and Ultriproc-3DLUT-16. These are bulk packages of 16 licenses. These packages are treated as 16 individual licenses in Ultrix, which may be individually distributed to any compatible cards in the frame.

Compatible Hardware

Frames

Ultriproc and Ultriproc-3DLUT may be used in all current Ultrix frames including:

- Ultrix-FR-NS1
- Ultrix-FR-NS2
- Ultrix-FR5
- Ultrix-FR12

Cards

Ultriproc and Ultriproc-3DLUT may be installed on Ultrix-HDX-IO and Ultrix-MODX-IO cards only.

Configuration

Ultriproc and Ultriproc-3DLUT licenses are applied to inputs or outputs on a port-by-port basis on compatible cards. The user will first decide whether a specific card should be configured for input or output mode, then whether the card should operate in UHD mode (Ultrispeed license required), followed by the specific ports to be licensed.

Input and Output Modes

Within an Ultrix frame, any compatible I/O card can be set to either input or output mode, which determines where Ultriproc licenses can be applied—restricting them to either inputs or outputs according to your setup preferences. Within a frame, there is no restriction to the number of compatible I/O cards that can be designated as input or output.

Input mode: Ultriproc processing is applied to inputs only on that I/O card. Ultriproc processing will affect all outputs connected to a licensed input.

Output mode: Restricts Ultriproc processing to individual licensed outputs.

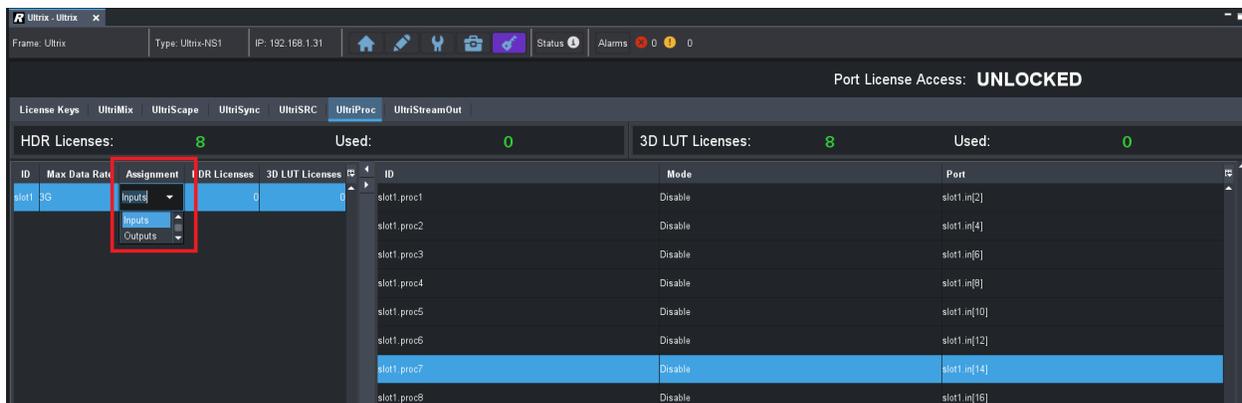


Figure 1 - Selecting Input or Output Mode

UHD Mode

The Ultristream license enables an Ultrix frame to operate at UHD. Ultriproc is capable of processing UHD signals in an Ultristream-licensed frame. To allow UHD processing on a specific I/O card, it must be configured for UHD mode. An I/O card set to UHD mode can utilize up to four Ultriproc licenses for UHD processing. If UHD processing is not required, the I/O card can remain in 3G mode, enabling up to eight Ultriproc licenses.

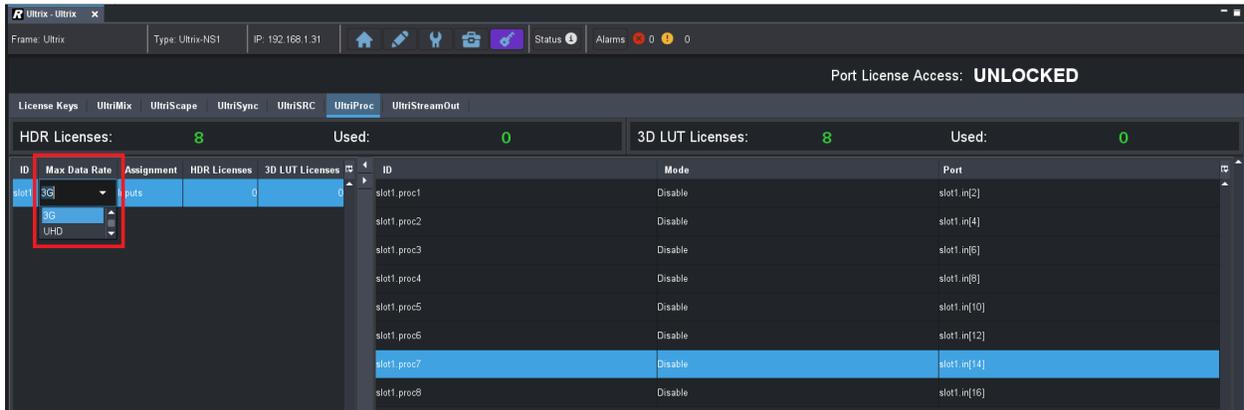


Figure 2 - Selecting 3G or UHD Mode

Port Assignment

Ultriproc processing resources are available on specific even-numbered input or output ports of compatible I/O cards. The following sequence applies when designating Ultriproc and Ultriproc-3DLUT licenses.

1. The card is set to **input** or **output** mode.
2. The card is set to **3G** or **UHD** mode.
3. In **3G** mode, Ultriproc can be applied to up to eight of the following ports:

When configured for **input** mode:

- Inputs: 2, 4, 6, 8, 10, 12, 14, 16

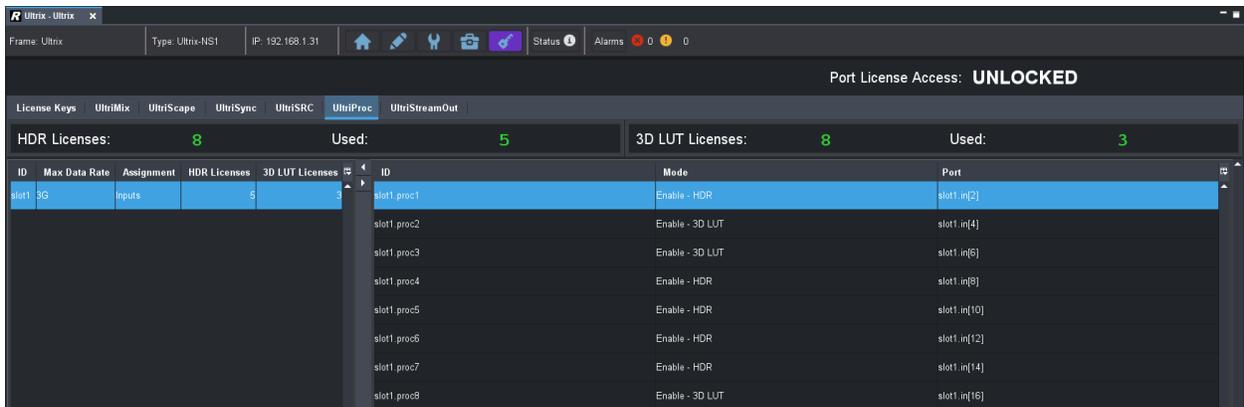


Figure 3 - Ultrix HDX-IO Configured in 3G Mode and Input Mode with 5 x Ultriproc and 3 x Ultriproc-3DLUT Licenses Applied

When configured for **output** mode:

- Outputs: 2, 4, 6, 8, 10, 12, 14, 16

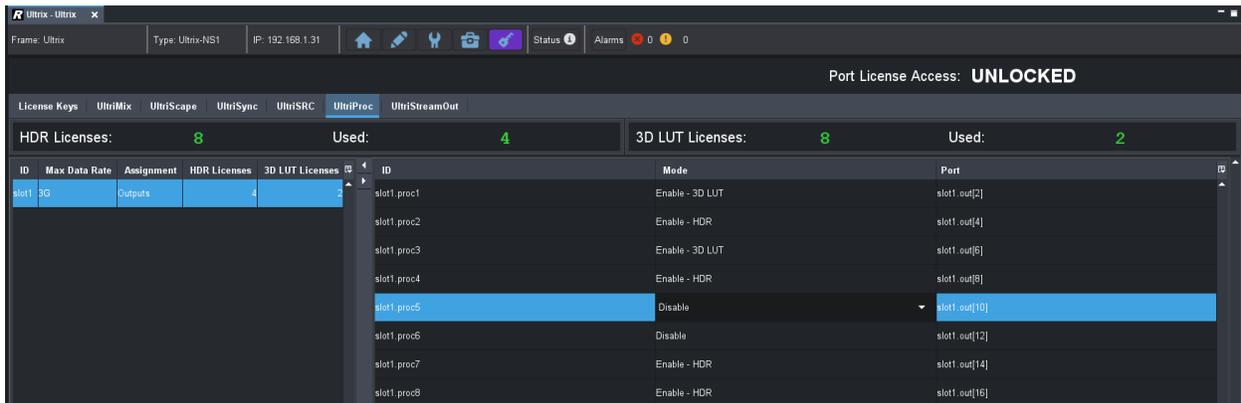


Figure 4 - Ultrix HDX-IO Configured in 3G Mode and Output Mode with 4 x Ultriproc and 2 x Ultriproc-3DLUT Licenses Applied

4. In **UHD** mode, Ultriproc can be applied to up to four of the following ports:

When configured for **input** mode:

- Inputs: 2, 6, 10, 14

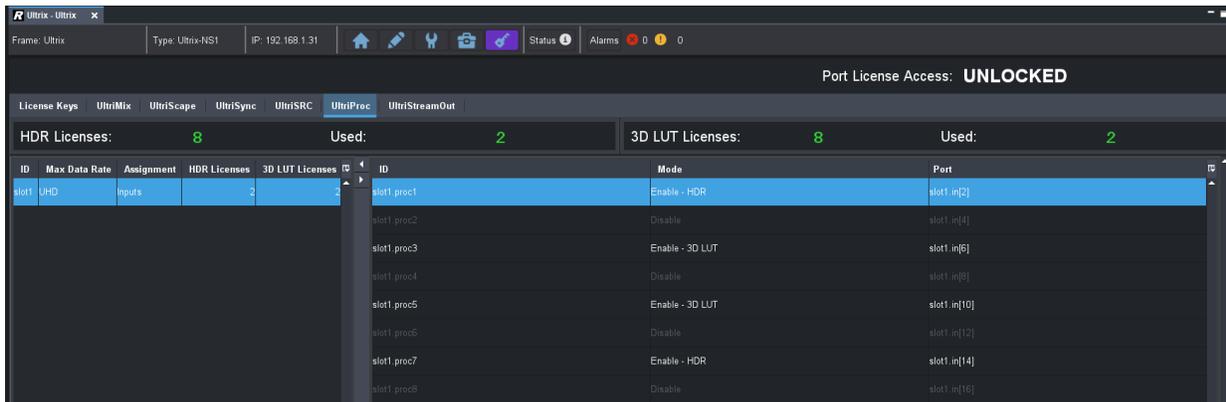


Figure 5 Ultrix HDX-IO Configured in UHD Mode and Input Mode with 2 x Ultriproc and 2 x Ultriproc-3DLUT Licenses Applied

When configured for **output** mode:

- Outputs: 2, 6, 10, 14

Ultrix - Ultrix x

Frame: Ultrix Type: Ultrix-NS1 IP: 192.168.1.31 Status: Alarms: 0 0

Port License Access: **UNLOCKED**

License Keys: Ultrimix UltraScape UltraSync UltraSRC **UltraProc** UltraStreamOut

HDR Licenses: 8 Used: 2 3D LUT Licenses: 8 Used: 2

ID	Max Data Rate	Assignment	HDR Licenses	3D LUT Licenses	ID	Mode	Port
slot1	UHD	Outputs	2	2	slot1_proc1	Enable - 3D LUT	slot1.out[2]
					slot1_proc2	Disable	slot1.out[4]
					slot1_proc3	Enable - 3D LUT	slot1.out[6]
					slot1_proc4	Disable	slot1.out[8]
					slot1_proc5	Enable - HDR	slot1.out[10]
					slot1_proc6	Disable	slot1.out[12]
					slot1_proc7	Enable - HDR	slot1.out[14]
					slot1_proc8	Disable	slot1.out[16]

Figure 6 - Ultrix HDX-IO Configured in UHD Mode and Output Mode with 2 x Ultriproc and 2 x Ultriproc-3DLUT Licenses Applied