

Ultrix



Ultrix & Netgear AV ST 2110 Solutions

Moving to ST 2110 does not have to mean taking on a complex network-engineering project. This solution brief presents practical, scalable system designs that combine Ross Ultrix Hyperconverged routing and processing with NETGEAR AV switches.

ROSS

From compact 25G HD systems to high-capacity 100G UHD and distributed architectures

Each design uses clearly defined components, straightforward topologies, and AV-optimized switch profiles—making it easier to size, configure, deploy, and expand a reliable ST 2110 infrastructure while preserving Ultrix's unified approach to routing, processing, monitoring, and multi-format connectivity.

Easy to deploy

Ross, in partnership with Netgear, has engineered easy-to-deploy systems that take the complexity out of the equation.

These systems are built upon single-switch architecture

Ample capacity for small to medium ST 2110 deployments.

Ross offers all the necessary components to implement these solutions and has easy to follow installation guides to take the guesswork out of building ST 2110 solutions. Leveraging Netgear AV pre-configured profiles and straight-forward network design, these systems are easy to deploy without need for advanced network knowledge.



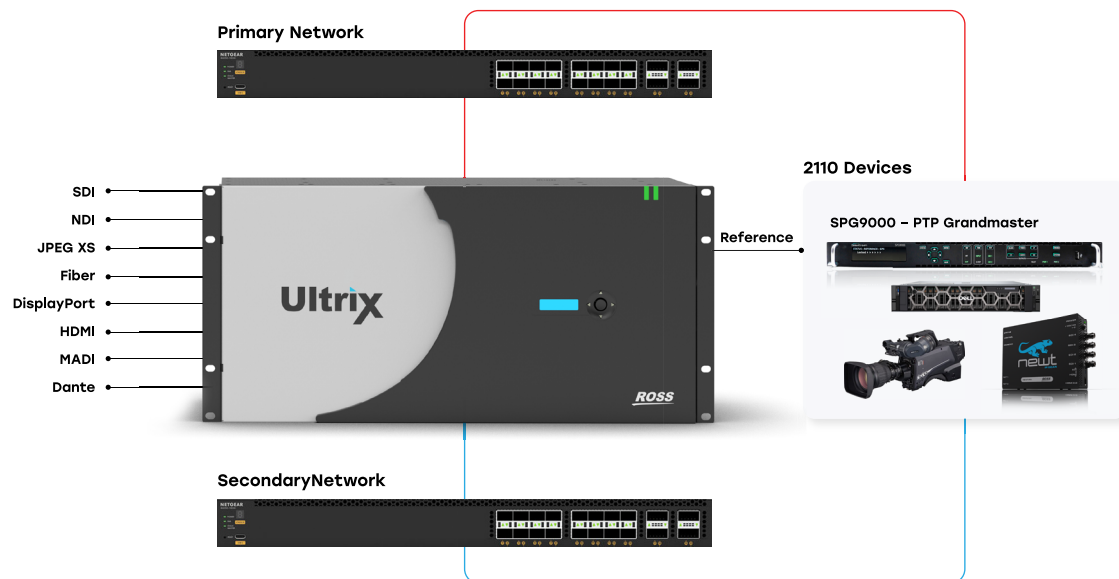
Your edge processor in 2110 infrastructure

In ST 2110 infrastructure, Ultrix serves as a powerful production hub, edge processor and multi-transport signal gateway.

Seamlessly integrate popular media transports into your ST 2110 environment, and add production switchers, audio mixers within the same platform.

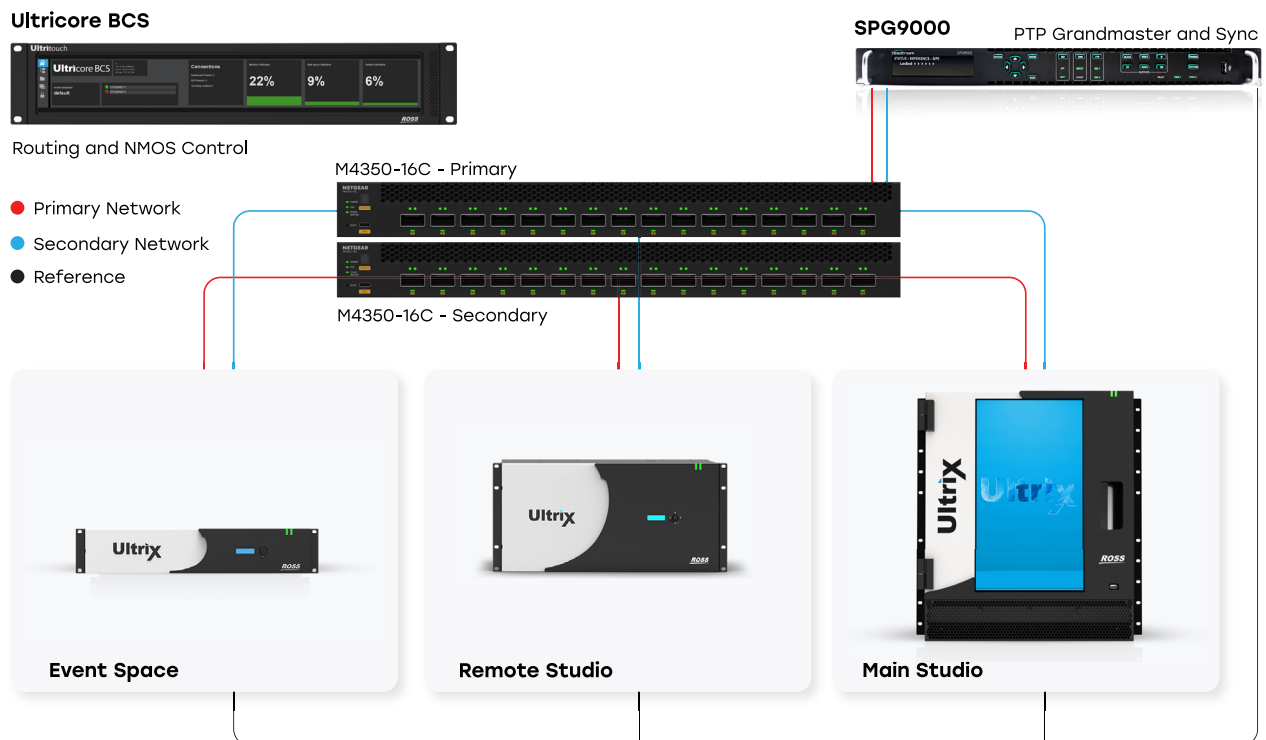
Inline signal processing simplifies the task of conforming a variety of media sources to your production needs.

All this power is easily monitored through the powerful, integrated Ultriscape multiviewers so your technical and operations teams can keep an eye on the action.



Distributed HD System - 2110 Tie Lines

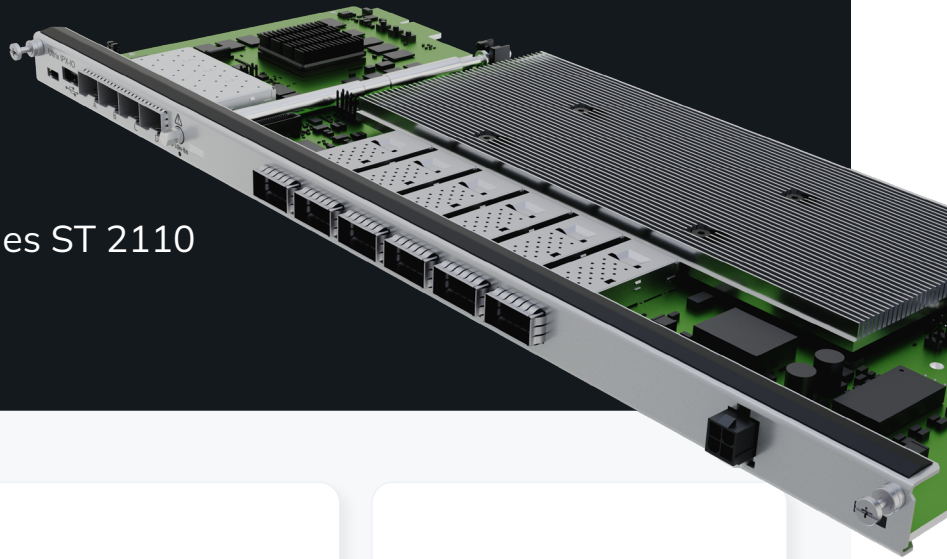
Create distributed routing solutions with multiple Ultrix frames. Frames can be deployed where needed to act as studio hubs, gateways, production switchers or edge signal processing nodes. Ultrix adapts to your infrastructure, so you don't need to.



Leveraging Netgear switch fabric, build systems with capacity of over 500 tie lines providing abundant flexibility for medium-to-large distributed installations. PTP timing and baseband reference are provided by the SPG9000, with optional test signal generation in both SDI and 2110. The solution is managed by Ultracore BCS or Ultracore-SVR, providing a cohesive routing control system.

Ultrix-IPX-IO Card

The Ultrix-IPX-IO card provides ST 2110 interfaces for Ultrix frames.



Each card
offers:

16 2110-20
Video Senders

16 2110-20
Video Receivers

16 2110-40
Ancillary Senders

16 2110-40
Ancillary Receivers

16 2110-30
Audio Senders

16 2110-30
Audio Receivers

NMOS IS-04
IS-05 | IS-08 | IS-10
Control

1080i	720p
1080p	2160p

Supported video
formats

4 IP media ports,
configurable as 25G
or 100G

Integrated
input frame
synchronizers

Up to
3 Ultriscap
multiviewers

System Timing / PTP Generator



The Telestream SPG9000 provides a resilient and flexible timing solution for ST 2110 and hybrid solutions. It provides all the necessary timing and test signals required for Ultrix and the ST 2110 network, locked to a common reference for stable, predictable timing performance.

Features include:

Blackburst / tri-level sync generators

2 PTP engines, capable as Grandmaster or follower

SDI pattern generation up to 2160p with embedded audio and VANC

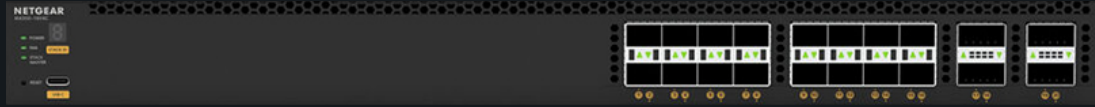
ST 2110 pattern generation including video, audio and ANC

Support for ST 2022-7 redundant networks

GNSS (GPS) based time reference locking

NetGear AV Switches

M4350-16V4C



M4350-16C



Ross recommends the Netgear AV M4350 series switches for ST 2110 deployments. The models shown above are offered by Ross for building ST 2110 solutions.

These
switches
offer:

25G and 100G
Interfaces

100G interfaces
support breakout to
4x25G

Multicast support with
IGMP snooping

PTP Boundary Clock
with SMPTE profile

Simple to deploy
profiles to optimize
ST 2110 performance

Transceivers, Cables and Accessories

Ross offers a comprehensive selection of optical transceivers, interconnect cables and accessories to round out your system design and installation.



Control

Streamline control across large, multi-format systems with Ultracore. Built for modern broadcast environments where SDI and IP coexist, it helps you route signals faster, reduce errors, and operate with confidence under pressure. Ultracore brings SDI, ST 2110, NDI, and hybrid workflows into one consistent control experience — so operators stop juggling tools and start moving faster.

Key features:

Routing control for SDI, ST 2110 and NDI

Unified control, regardless of signal transport/interface

Supports key remote-control interfaces include NMOS, SW-P-08, SMS-7000 and more

Unlimited, customizable soft control panels

Hardware panel support

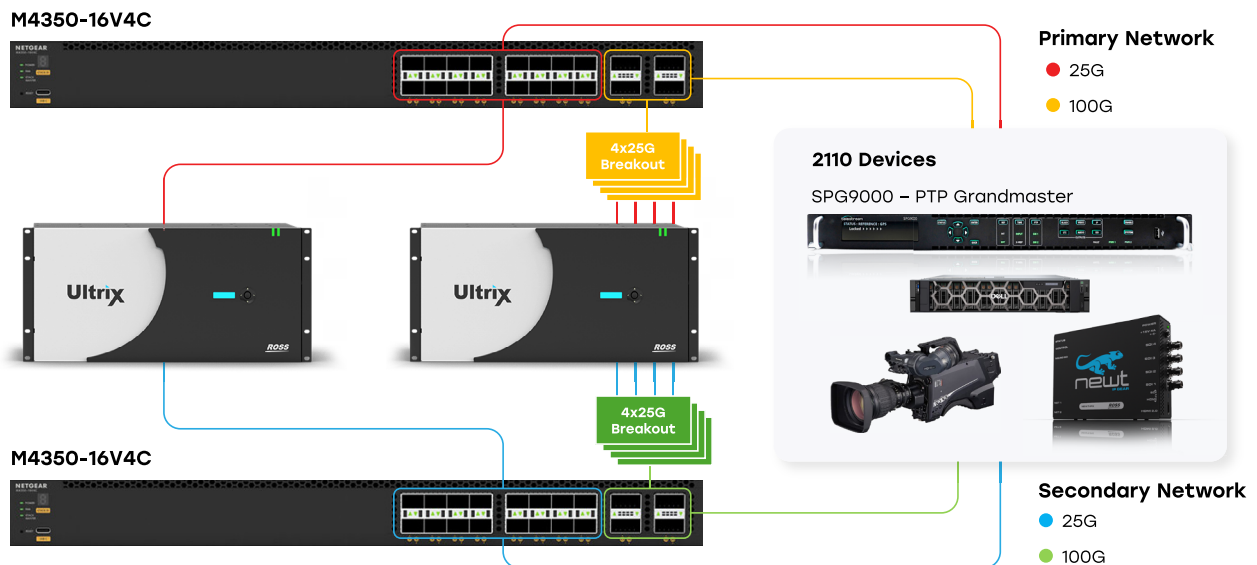
Tie lines to manage multi-frame and multi-transport systems

User profiles & permissions

Redundant controller support

HD System with 25G Network

For small to medium-sized HD systems, a 25G switch architecture provides the best value. In this solution, Ultrix ports run at 25G which interface directly to 25G ports on the switches, or via 4x25G breakout cables to 100G switch ports. Additional 2110 devices can connect via 10G, 25G or 100G ports. The primary and optional secondary network each consist of a single M4350-16V4C switch.



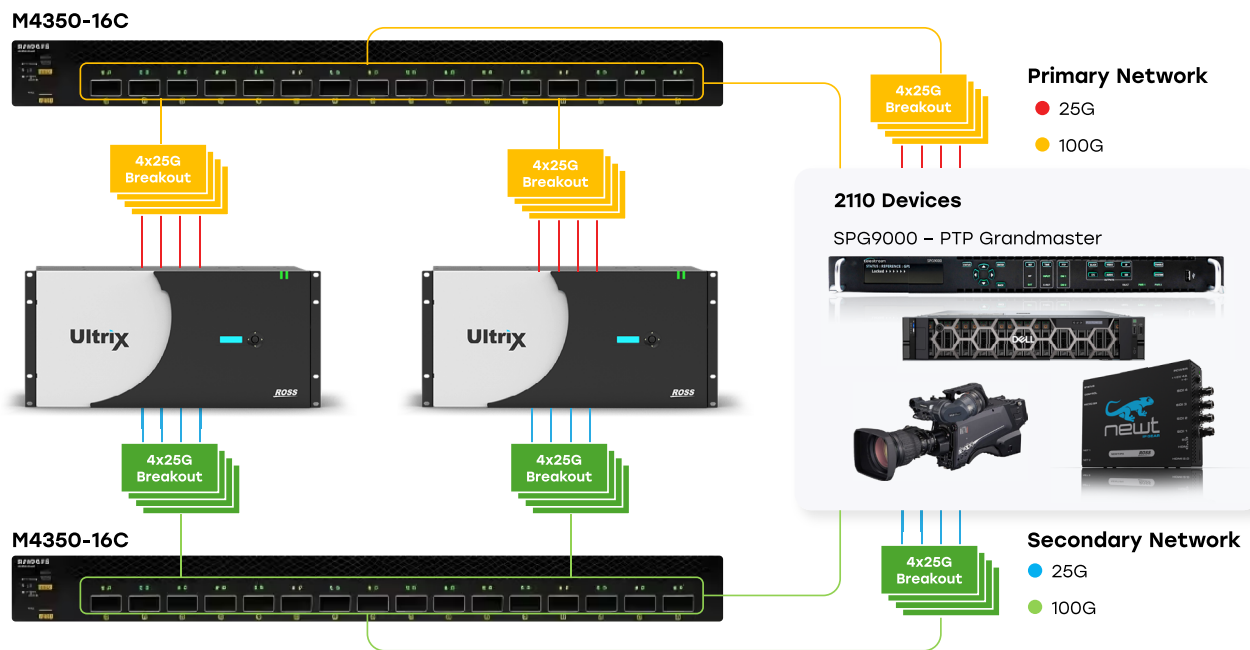
Switch

NetGear M4350-16V4C

Maximum system size	240 x 240 video streams up to 1080p60 (3G) resolution
25G ports	16
100G ports	4, fanout up to 16x10G/25G
2022-7 Redundancy	Available with 2nd switch
PTP Grandmaster	Telestream SPG9000

HD System with 100G Network

For larger HD systems, a 100G switch architecture provides greater capacity. In this solution, Ultrix ports run at 25G which interface via 4x25G breakout cables to 100G switch ports. Additional 2110 devices can connect via 10G, 25G or 100G ports. The primary and optional secondary network each consist of a single M4350-16C switch.



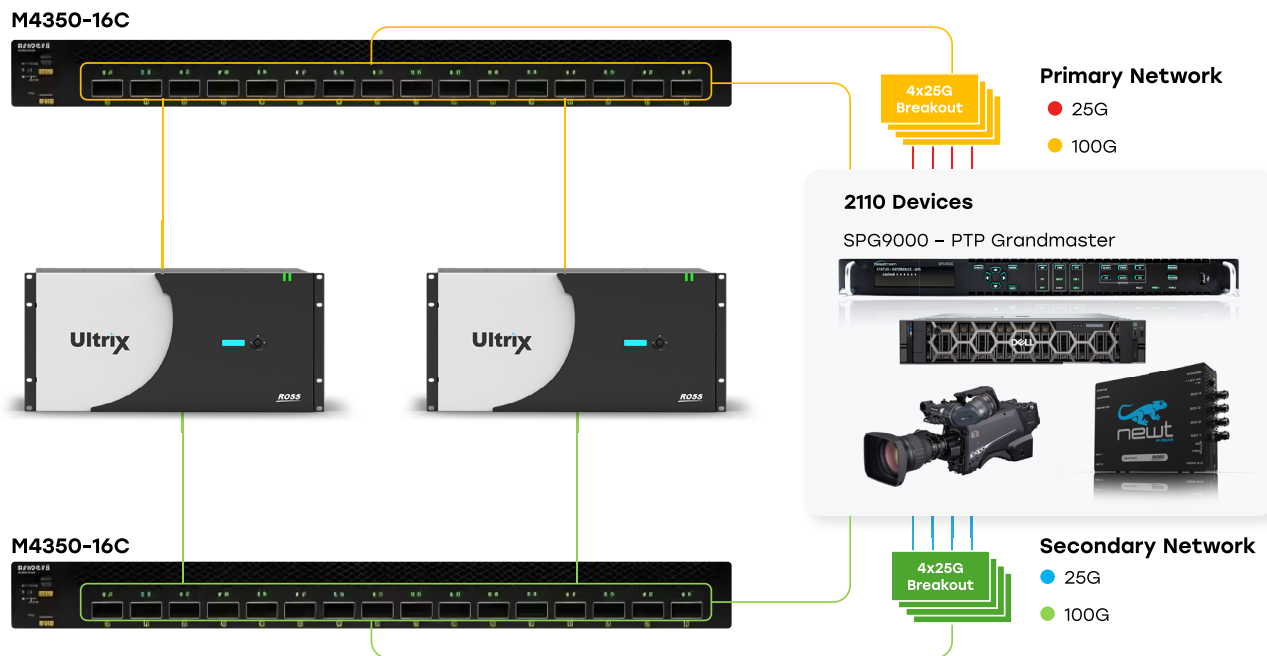
Switch

NetGear M4350-16C

Maximum system size	480 x 480 video streams up to 1080p60 (3G) resolution
100G ports	16, fanout up to 64x10G/25G
2022-7 Redundancy	Available with 2nd switch
PTP Grandmaster	Telestream SPG9000

UHD System with 100G Network

For UHD systems, a 100G switch architecture provides the necessary port capacity for 12G flows. In this solution, Ultrix ports run at 100G which interface directly to 100G switch ports. Additional 2110 devices can connect via 10G, 25G or 100G ports. The primary and optional secondary network each consist of a single M4350-16C switch.



Switch

NetGear M4350-16C

Maximum system size	120x120 video streams up to 2160p60 (12G) resolution
100G ports	16
2022-7 Redundancy	Available with 2nd switch
PTP Grandmaster	Telestream SPG9000

Ordering Information

Ultrix and Ultricore Components and Licenses

Please contact your Ross Sales Representative or visit our online configuration tool at ultrix.rossvideo.com

Netgear AV Components & Services

NG-M4350-16V4C	Netgear M4350-16V4C Switch – 16x25G / 4x100G
NG-M4350-16C	Netgear M4350-16C Switch – 16x100G
NG-APS600W-3	Netgear Redundant Power Supply for M4350 Series
NG-COM-ONLINE-1DAY	Netgear - Online Commissioning - 1 Day
NG-COM-ONSITE-1DAY	Netgear - Onsite Commissioning - 1 Day

Telestream SPG9000 Components

SPG9000	SPG9000 Master Sync Generator
SPG9000-DPW	Redundant Power Supply
SPG9000-GNSS	GNSS/GPS Time synchronization license
SPG9000-ACC-ANT	GNSS Antenna
SPG9000-PTP	PTP License
SPG9000-IP	ST 2110 Test Signal Generator License
SPG9000-SDI	SDI Test Signal Generator License
SPG9000-TSG	ST 2110 + SDI Test Signal Generator License
SPG9000-RACK	Rackmount kit for SPG9000
SPG9000-SFP-25GESR	25G 850nm SFP28 module (multimode)
SPG9000-SFP-25GELR	25G 1310nm SFP28 module (single mode)

Optical Transceivers, Cables, and Accessories

SFP-10GBASE-SR	10G 850nm SFP+ module (multimode)
SFP-10GBASE-LR	10G 1310nm SFP+ module (single mode)
SFP28-25GBASE-SR	25G 850nm SFP28 module (multimode)
SFP28-25GBASE-LR	25G 1310nm SFP28 module (single mode)
QSFP28-100GBASE-SR4	100G 850nm QSFP28 module (multimode)
QSFP28-100GBASE-CWDM4	100G CWDM4 QSFP28 module (single mode)
SFP28-25GBASE-AOC3M	25G Active Optical Cable – 3M
SFP28-25GBASE-AOC10M	25G Active Optical Cable – 10M
QSFP28-100GBASE-AOC3M	100G Active Optical Cable – 3M
QSFP28-100GBASE-AOC10M	100G Active Optical Cable – 10M
QSFP28-4SFP28-AOC3M	100G to 4x25G Active Optical Breakout Cable – 3M
QSFP-SFP28-QSA	QSFP to SFP Active (QSA) Adapter – 25G