

## Compound Shared Shaping Overview

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Compound shared shaping is a hardware-assisted mode that can control bandwidth for all scheduler objects associated with the subscriber logical interface. Thus it can manage voice and video queues in addition to data queues, so that the shared rate cannot be exceeded.

Compound shared shaping responds to changes in traffic rates more rapidly than simple shared shaping, in the order of milliseconds.

### Supported Hardware for Compound Shared Shaping

You can configure compound shared shaping on a line module with the EFA2 or TFA hardware.

The EFA2 implementation is different from the EFA ASIC, which does not implement compound shared shaping. Issue the **show qos shared-shaper** command to determine whether compound shared shapers are supported for the line module. Contact your Juniper Networks account representative for more information about line modules with the EFA2 ASIC.

The TFA hardware is only available on the ES2 10G LM on the E120 and E320 Broadband Services Routers.

If you configure a compound shared shaper on hardware that does not support it, the CLI displays the following message:

```
host1(config)#ERROR 02/08/2005 14:06:36 qos: line card in slot 11: EFA2 hardware
not installed. 1 compound shared shaper(s) converted to simple.
```

QoS automatically converts the compound shared shaper to a simple shared shaper.



**NOTE:** Compound shared shaping is not supported by the frame forwarding ASIC (FFA).

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### Bandwidth Allocation for Compound Shared Shaping

The compound shared-shaper mechanism actively allocates the bandwidth it receives from the hierarchical scheduler to each active constituent, based on its own rules, independent of the hierarchical scheduler. Constituents are either *priority* constituents or *weighted* constituents. These attributes are specified using the **shared-shaper-constituent** command.

Compound shared-shaper scheduling allocates bandwidth as follows:

1. Priority constituents consume as much of the shared bandwidth as they can, subject to the bandwidth allocated to them by the hierarchical scheduler.
2. Priority constituents are ordered according to their priority.

3. The weighted constituents subdivide the remaining shared bandwidth in proportion to their shared weights, again subject to the bandwidth allocated to them by the hierarchical scheduler.

- Related Topics**
- For a list of shared shaper terms, see Shared Shaping Overview
  - Configuring Compound Shared Shaping

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