



## CHAPTER 4

# FlexWAN Module and Enhanced FlexWAN Modules

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This chapter describes the FlexWAN and Enhanced FlexWAN modules.

The FlexWAN and Enhanced FlexWAN modules are installed in a Catalyst 6500 series switch or Cisco 7600 series router that has a supervisor engine with a Multilayer Switch Feature Card (MSFC) and Policy Feature Card (PFC). The MSFC, in conjunction with the Enhanced FlexWAN module, provides multiprotocol routing support with full Internet route connectivity for speeds ranging from serial RS-232 to OC-3. The FlexWAN and Enhanced FlexWAN modules can accept up to two Cisco 7200/7500 WAN port adapters, which deliver WAN consolidation and extend quality of service (QoS) and traffic management capabilities over WAN segments. The FlexWAN and Enhanced FlexWAN modules support ATM and POS OC-3 links and channelized, clear-channel port adapters at speeds from DS0 to T3/E3.

The Enhanced FlexWAN module also provides connectivity to the crossbar fabric and enhancements in processor speed and onboard memory.

For information on configuring features supported on the port adapters, refer to the applicable port adapter documentation located at this URL:

[http://www.cisco.com/univercd/cc/td/doc/product/lan/cat6000/cfgnotes/flexwan/flex\\_pa/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/lan/cat6000/cfgnotes/flexwan/flex_pa/index.htm).

Table 4-1 shows the port adapters supported on the FlexWAN module.



**Note**

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A FlexWAN or Enhanced FlexWAN module without port adapters inserted is not a supported configuration.

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**Table 4-1 Supported Port Adapter Groups**

<b>Group</b>	<b>Port Adapter</b>
ATM (with traffic shaping)	PA-A6-OC3MM PA-A6-OC3SMI PA-A6-OC3SML PA-A6-T3 PA-A6-E3  PA-A3-OC3MM PA-A3-OC3SMI PA-A3-OC3SML PA-A3-T3 PA-A3-E3 PA-A3-IMA-T1/E1
HSSI	PA-H PA-2H
Packet over Sonet (OC-3)	PA-POS-OC3MM PA-POS-OC3SMI PA-POS-OC3SML PA-POS-2OC3 PA-POS-1OC3
T1/E1	PA-4T+ PA-8T-V35 PA-8T-X21 PA-8T-232 PA-MC-2E1/120 PA-MC-2T1 PA-MC-4T1 PA-MC-8T1 PA-MC-8E1/120 PA-MC-8TE1+ PA-MC-STM-1
T3/E3 (clear-channel and channelized)	PA-T3 PA-2T3 PA-T3+ PA-2T3+ PA-E3 PA-2E3 PA-MC-T3 PA-MC-2T3+ PA-MC-E3
Fast Ethernet <sup>1 2</sup>	PA-1FE-FX PA-1FE-TX PA-2FE-FX PA-2FE-TX

1. Supported on the Enhanced FlexWAN module only.
2. The option to configure the interface as Layer 2 port is not supported on the Enhanced FlexWAN module.

For more information about the MSFC and PFC, refer to the appropriate *Cisco 7600 Series Cisco IOS Software Configuration Guide* for your software release.



**Note** Throughout this publication, except where noted, the term *MSFC* refers to both MSFC and MSFC2, and the term *PFC* refers to both PFC and PFC2.

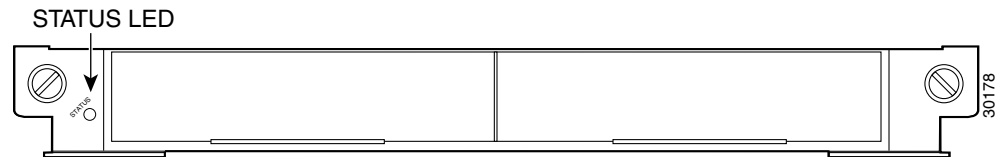


**Note** To use the FlexWAN and Enhanced FlexWAN modules, you must have a supervisor engine with an MSFC and a PFC. You configure the FlexWAN and Enhanced FlexWAN modules through the MSFC.

The STATUS LED on the FlexWAN and Enhanced FlexWAN modules front panel (see [Figure 4-1](#)) indicates the status of the FlexWAN module. [Table 4-2](#) describes the LED operation.

For information on FlexWAN and Enhanced FlexWAN modules hardware and software requirements and port adapter installation and configuration, refer to the *FlexWAN and Enhanced FlexWAN Modules Installation and Configuration Guide* and to the *FlexWAN & Enhanced FlexWAN Installation Guide*.

**Figure 4-1** FlexWAN Module (WS-X6182-2PA) and Enhanced FlexWAN Module (WS-X6582-2PA) Front Panel



**Table 4-2** FlexWAN and Enhanced FlexWAN Modules LED Description

LED	Color/Description
STATUS	<p>The STATUS LED shows the module status:</p> <ul style="list-style-type: none"> <li>• Normal initialization sequence <ul style="list-style-type: none"> <li>Orange—Module is booting or running diagnostics</li> <li>Green—All diagnostics pass, module is operational</li> </ul> </li> <li>• Fault during initialization sequence <ul style="list-style-type: none"> <li>Orange—Module is booting or running diagnostics</li> <li>Red—Diagnostic test fails, module is not operational</li> </ul> </li> <li>• Environmental monitoring <ul style="list-style-type: none"> <li>Orange—Over temperature condition (minor threshold exceeded)</li> <li>Red—Over temperature condition (major threshold exceeded)</li> </ul> </li> </ul>



**Note** The FlexWAN or Enhanced FlexWAN module status LED displays red on initial power-up and then displays orange.

**Note**

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STATUS LED off indicates the module has been powered off with the **no power enable** command or is faulty.

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**Note**

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For detailed information about port adapter LEDs, refer to the documentation that shipped with your port adapter.

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