FASTBOOT

Fast switch initialization for Marvell Prestera based systems

Larch Fastboot is a productized switch initialization software package for systems built on the **Marvell Prestera® family of Ethernet switch devices**.

The solution specifically supports **AlleyCat (AC5, AC5Y, AC5X, AC5P)**, **Ironman**, **Aldrin** as well as other packet processor families.

Fastboot initializes the switch packet processor, ports, and forwarding plane at power-on, enabling static Layer 2 connectivity without requiring a full Network Operating System (NOS).

Designed as a commercial off-the-shelf software product, Fastboot provides customers with:

Defined scope

Predictable cost

Documented deliverables

Validation on target hardware

Warranty and support coverage

This approach offers a practical alternative to a custom software development project.

Standard board enablement (bring-up) is included as part of the package.

Running on the integrated **ARMv7 Cortex-M3 (CM3)** auxiliary uController embedded within the packet processor ASIC, Fastboot can operate as a lightweight standalone switching environment or provide early network availability while the main system CPU and NOS continue their startup sequence if present.

MARVELL	ARMv8.2 Cortex-A55 Dual Cluster	Linux CPSS SDK SAI NOS (ROS/SONIC) **Loads in >100 sec**
	ARMv7 Cortex-M3	RTOS Fast boot **Loads in <15 sec**

Who it is for

- Board manufacturers and OEMs building products around Marvell Prestera
- Aerospace, defense, industrial, electro-optics, and embedded networking platforms requiring rapid network availability
- Systems where the Ethernet switch is a subsystem managed by a host processor
- Products requiring deterministic switch startup, minimal software footprint, and static forwarding behavior
- Organizations seeking a commercially supported software product rather than a custom engineering engagement

Commercial Terms

The standard offer includes:

- **Licensed Fastboot Software -** A licensed software package including: Fastboot runtime software, Configuration framework, Integration documentation. The license covers a single target board design based on supported Marvell Prestera silicon.
- **Board Enablement (Bring-Up)** - SerDes configuration and tuning, Port profiles, Board port mapping, Boot-flow integration, customer hardware specifications
- **Static Configuration Baseline** - One agreed static switch configuration, including Port speeds, VLAN definitions, One defined boot environment, One approved integration workflow
- **Validation** - Validation on customer hardware, including Link establishment testing, Traffic forwarding verification, Validation report. Testing is performed using customer-provided hardware and documentation.
- **Documentation** - Integration guide, Release notes
- **Warranty Support** - Bug fixes, Delivery and integration support during the agreed warranty period

What the product does

Fastboot provides the following capabilities:

- Initializes Prestera switch silicon from the auxiliary CM3 uController, including SerDes or PHY firmware, port mapping and board-specific port profiles.
- Built on a robust RTOS-based software architecture
- Loads static switch configuration from human-readable text files
- Supports configuration of: ports, VLANs, FDB entries, forwarding parameters as well as a range of pluggable modules, their recognition and initialization
- Provides a lightweight CLI for diagnostics and troubleshooting, including packet processor register access
- Brings up Ethernet links and enables traffic forwarding within 15 seconds of power-on, with optional optimization for faster startup where platform characteristics permit
- Integrates with customer-specific boot environments, including U-Boot-based platforms
- Provides operational status through a dedicated console interface

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Additionally offered services and options

The following capabilities are available through separate development, or maintenance engagements, tailored to specific project needs and hardware capabilities:

- Support for additional board variants multiple board designs and follow-on hardware variants
- Startup-time optimization targeting boot times below 15 seconds
- In-band network management capabilities
  (the base package supports management through a dedicated console interface)
- Custom network management solutions and integration
- Dynamic networking protocols and advanced control-plane functionality
- Security feature extensions, including MACsec and related technologies, subject to platform capabilities
- Extended maintenance and long-term support agreements
- Customer-specific application development outside the Fastboot integration scope
- Migration path to full-featured Larch NOS / ROS software platforms when advanced switch management capabilities are required

Typical timeline

Typical delivery is **8–14 weeks** from receipt of the required hardware documentation and target hardware.
The exact schedule depends on:

- Hardware availability
- Board maturity and readiness
- Port configuration complexity
- Validation requirements

Delivery milestones are established jointly at project kickoff.

Field-proven

The Fastboot product line has been deployed in multiple European and Israeli aerospace and defense programs, as well as other embedded networking platforms based on Marvell Prestera devices.

Examples include:

- Avionics platforms that require rapid network availability, board-specific integration, validation, and certification support
- Electro-optics systems utilizing AC5-family devices with fast initialization requirements
- Additional Prestera-based programs requiring deterministic switch startup and lightweight operation

These deployments demonstrate Fastboot's suitability for mission-critical environments where startup time, reliability, and deployment risk are key considerations.

Typical delivery flow

Step 1 Requirements	→	Step 2 Initial Build	→	Step 3 Enablement & Validation	→	Step 4 Product	→	Step 5 Support

Step 1 — Requirements & Platform Analysis
Customer provides: Hardware specification, Block diagram. Port map, Boot-flow and Target configuration requirements as well as Target hardware access
Larch reviews the platform and confirms Fastboot applicability, capabilities, and project scope.
Step 2 — Initial Build Delivery - Larch delivers an initial Fastboot build for customer evaluation on development hardware or the target platform, depending on hardware availability.
Step 3 — Enablement & Validation - Larch completes: Board enablement. Port configuration. Integration activities. Link and traffic validation on the target hardware
Step 4 — Product Package Delivery - Customer receives: Fastboot software package, Configuration framework, Integration documentation, Release notes and Validation report
Step 5 — Warranty & Support - is provided through the Larch support process, including issue tracking and corrective software updates where applicable.

How to order

To begin the evaluation process, please provide the information mentioned in the Step 1 – Requirements & Platform analysis to your Larch contact.
Larch will review the platform, confirm compatibility with the standard Fastboot package, and provide a quotation for the defined board scope.

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