

Power Filters  
Power $\mu$ Filter™  
Version 1.1

## Overview

The Power $\mu$ Filter™ is a set of  $\mu$ Code patches for Motorola's PowerQUICC II processor.

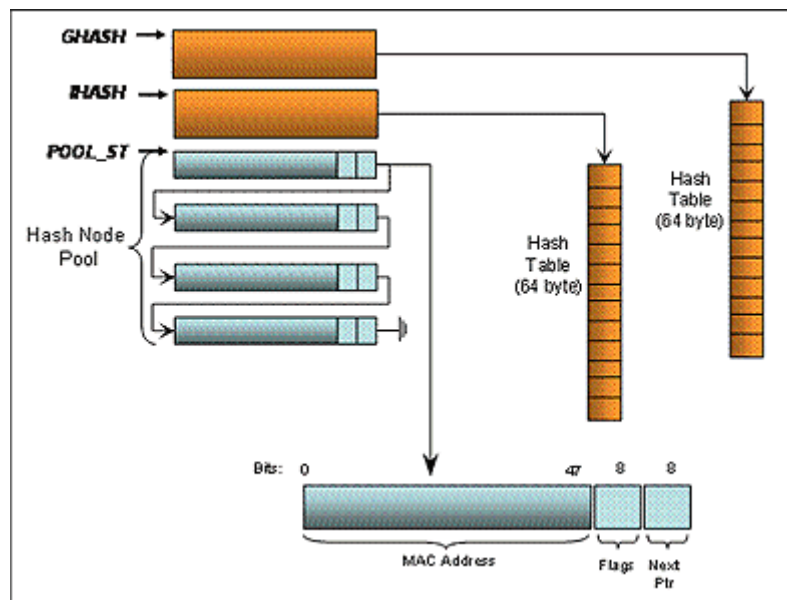
The purpose of these patches is to boost performance significantly, by handling the MAC or IP-screening on-the-fly at  $\mu$ Code level. This approach eliminates the need for storing unwanted frames into the memory (by the CPM) as well as reloading it for further processing (by the CPU).

A user defined list of MAC (up to 255) or, IP/Port (up to 1K) addresses, is used as either a "white list" (accept only) or a "black list" (reject only).

Since Motorola's PQIII CPM will be compatible with legacy PQII CPM features, Power $\mu$ Filter™ patches can be easily adapted to the next generation PQ processors (after recompilation).

## $\mu$ FilterMAC

The ROM version of the PowerQUICC II  $\mu$ Code provides a basic filter of Rx packets according to the Destination MAC address. However, the packets that pass the filter are only candidates, and further compare by the S/W driver is required. This can take place only after the entire frame has been stored in memory. The  $\mu$ FilterMAC  $\mu$ Code module allows the user to create a list of up to 255 different MAC addresses. The  $\mu$ Code use this table as exact match table. If the frame was selected for discard, the frame is not stored in memory. Therefore, bus bandwidth is increased, and considerable work is offloaded from the Application S/W. The address list is stored on the DPR (2K bytes worst case). The list can be updated dynamically.



## $\mu$ FilterIP

The  $\mu$ FilterIP module uses a memory resident IP/Port table (up to 1K entries). This table can be dynamically updated (both append and remove). The  $\mu$ FilterIP module uses data extracted from the Network and Transport layers of the incoming packets to conduct the filtering decisions. The decision is based on exact match.

## IP/Port Filtering

The IP/Port filtering process can treat the table with two approaches:

- ▶ **White List** - Only the packets containing the specified IP/Port that are listed in the table are forwarded.

- ▶ **Black List** – Only the packets containing the specified IP/Port that are listed in the table are discarded.

Two different patches are available:

- ▶ Filtering by Source IP/Port.

- ▶ Filtering by Destination IP/Port.

**Note:** The Port parameter is Transport-Layer dependent.

## **Customization**

Customization to specific requirements is welcomed.

For example:

- ▶ The customer may want to filter only specific Network/Transport protocol types (IP only, TCP only, etc.).

- ▶ The customer may want to implement this patch to HDLC protocol.