

Introduction

The FIREWALL is an additional protection system offered by microcontrollers of the STM32 L0 and L4 series. It is used to protect some parts of code or data inside the Flash or the SRAM memories from any attack intended to dump the code or to get visibility of the associated sensitive data. Each illegal access to these protected areas is detected by the FIREWALL which generates consequently a reset, kicking off any intrusion.

The FIREWALL can protect three distinct configurable areas, commonly called segments:

- Code segment located in the Flash or in the SRAM memories;
- Non-Volatile data segment located in the Flash memory;
- Volatile data segment located in the SRAM memory.

Each of these segments may be accessed by the CPU when the FIREWALL is open (allowed access types are depending on the segment in which the access is performed). While the FIREWALL is closed, there is no possible access to these protected segments. Each access triggers a reset.

A specific sequence called “call gate” needs to be executed to open the FIREWALL. It is the single entry point to open the FIREWALL and unlock the accesses to the protected code and data areas (protected code execution as well). Coming back from the call gate function will close it.

The FIREWALL may be used to protect sensitive code coming from a third party and hit by an OEM application software.

A high level of protection may be obtained combining FIREWALL properties and other protection mechanisms like proprietary code readout protection or read protection (PCROP or RDP).

Different application schemes can be considered depending on the targeted security constraints, the software architecture and the associated working model during the development phase.

For more details about the complete solution, please contact your local ST sales representative.

1 Revision history

Table 1. Document revision history

| Date | Revision | Changes |
|-------------|----------|------------------|
| 25-Aug-2015 | 1 | Initial release. |

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