



Smart Grid Solution Platforms

## MPC8308 Networked Smart Gateway for Energy Management and Security

### Customer premise solutions

#### Target Applications

- Home security and safety systems
- Energy management and monitoring
- Wireless media gateway
- WLAN AP/routers

#### Overview

Freescale's networked smart gateway (NSG) reference design (shown in Figure 1) is based on the cost-effective MPC8308 PowerQUICC II Pro processor and supports a rich mix of capabilities, including energy management and control, home automation, home security and surveillance, as well as voice-over-Internet Protocol (VoIP) and HD video streaming. Freescale's MPC8308 processor delivers a superb price/performance blend and the horsepower to run a variety of applications simultaneously.

The MPC8308-NSG enables "anytime, anywhere" access and control over an M2M link from any smart hand-held device via its graphical user interface (GUI). The MPC8308-NSG supports home area network (HAN), wireless local area network (WLAN) and wide area network (WAN) connectivity, with an integrated MPC13226 ZigBee® radio for HAN connectivity to smart meters as well as smart plugs and appliances, an integrated 802.11n 2x2 Wi-Fi® module that delivers over 300 Mbps of WLAN performance, and support for broadband WAN connectivity via either cable, DSL or LTE/3G (shown in Figure 2).

The MPC8308-NSG reference design kit includes a complete suite of OpenWRT software that requires no license fees and supports the following applications: GUI that enables Web-based access and management of connected devices and applications, NVR for home surveillance, HD video streaming and ZigBee HAN profiles for Smart Energy 1.0 and Home Automation 1.0. The NSG reference design features a compact 4" x 5" six-layer board and includes a low-cost clamshell enclosure with internal antennas and power supply (shown in Figure 3).



**Figure 1.** The MPC8308-NSG evaluation platform

## Turnkey Design

The MPC8308-NSG kit is mass production ready and can be ordered directly from Freescale or our distributors. The kit includes a fully tested NSG unit, power supply, documentation and cabling and comes with full schematics, gerbers and free OpenWRT software stack.



Figure 3.

## Features

- Freescale's high-performance MPC8308 PowerQUICC II Pro processor in 90 nm technology
- Cost-optimized bill of materials
- CE and FCC Class A certified, RoHS compliant, ready for mass production
- Complete OpenWRT software suite

## MPC8308 Networked Smart Gateway (NSG)

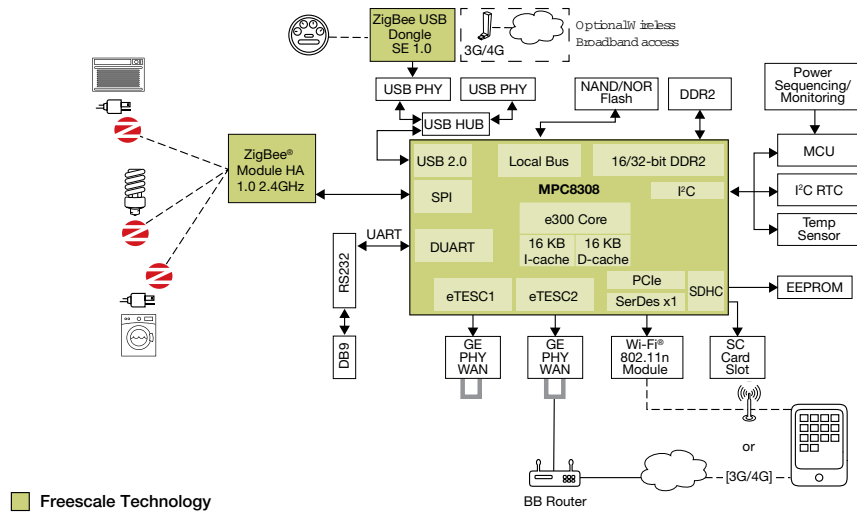


Figure 2. MPC8308-NSG system block diagram

## MPC8308 PowerQUICC II Pro Network Smart Gateway Specifications

Processor	<ul style="list-style-type: none"> <li>• MPC8308 PowerQUICC II Pro processor</li> <li>• 400 MHz e300c processor, built on Power Architecture® technology</li> <li>• 16 KB L1 instruction cache and 16 KB L1 data cache</li> </ul>
Memory	<ul style="list-style-type: none"> <li>• 128 MB DDR2 SDRAM</li> <li>• 8 MB NOR flash memory</li> <li>• 32 MB NAND flash memory</li> </ul>
Voice	<ul style="list-style-type: none"> <li>• G.729 session support</li> </ul>
Connectivity	<ul style="list-style-type: none"> <li>• Two GbE RGMII/MII ports</li> <li>• Two Mini USB 2.0 ports</li> <li>• One Mini PCI Express® connector</li> </ul>
Certification	<ul style="list-style-type: none"> <li>• CE and FCC Class A certified</li> </ul>
OS/BSP	<ul style="list-style-type: none"> <li>• Linux® 2.6.29.6 with redundant boot process from flash</li> </ul>
System Configuration and Management	<ul style="list-style-type: none"> <li>• Web browser based, TFTP: FTP and Telnet, system configuration restore in flash memory (firmware update)</li> </ul>
ODM Ready	<ul style="list-style-type: none"> <li>• Complete turnkey solutions with proven ODMs enable quick time to market with low investment cost</li> </ul>
Documentation	<ul style="list-style-type: none"> <li>• Hardware quick start guide and software users manual</li> </ul>
Hardware Deliverables	<ul style="list-style-type: none"> <li>• Schematics, gerbers and complete bill of materials</li> </ul>
Software Deliverables	<ul style="list-style-type: none"> <li>• Linux OS binary, source, application binaries and release notes</li> </ul>

For current information about Freescale products and documentation, please visit [freescale.com](http://freescale.com)



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