

## 2Gbps G.hn MAC/PHY Transceiver Solutions for Networking over Powerlines, Phone Lines and Coaxial Cable

### OVERVIEW

#### Evaluation Kits

DW920	Powerline EVK
DCP962C	Coax EVK
DCP962P	Phone Line EVK

#### Supporting ICs

88LX5152	DBB for Powerline
88LX5153/ 88LX5153A	DBB for Coax/ Powerline/Phone Line
88LX2720	AFE for Powerline
88LX2730	AFE for Coax/Phone Line
88LX2741	AFE for Coax/Powerline/ Phone Line

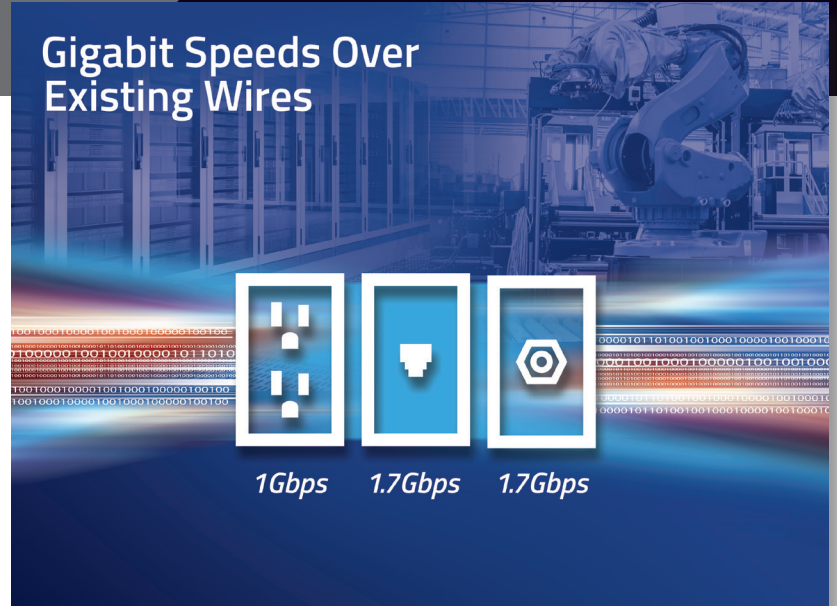
### FEATURES

- Coaxial Cable Performance
  - PHY rate up to 2Gbps
  - Max. throughput 1.7Gbps
- Phone Line (Twisted Pair) Performance
  - PHY rate up to 2Gbps
  - Max. throughput 1.7Gbps
- Powerline Performance
  - PHY rate up to 1.5Gbps
  - Max. throughput 1.0Gbps
- Data Interfaces
  - RGMII (1G)
  - SGMII (1G/2.5G)
- ITU-T Compliant with G.9960/61/62/63/64
- Commercial and Industrial temperature range
- 88LX5152 / 88LX5153 / 88LX5153A
  - 10mm x 10mm BGA186
- 88LX2720 / 88LX2730 / 88LX2741
  - 4mm x 4mm QFN28

### BENEFITS

- Faster net throughput versus competing solutions
- Spirit SDK (Software Development Kit) enables customized solutions with fast time-to-market
- End-to-end 128-bit AES CCMP encryption enables added security
- LDPC forward error correction, and other enhanced features enable reliable data delivery and robust performance in noisy environments

## Gigabit Speeds Over Existing Wires



The MaxLinear G.hn Wave-2 Product Family provides high-speed networking capabilities over any wired medium including powerlines, phone lines/twisted-pair and coax cables. With physical data rates up to 2Gbps, the MaxLinear G.hn Wave-2 platform is the fastest G.hn solution in the industry.

The G.hn Wave-2 product family is compliant with the latest version of the ITU-T G.hn standard (Recommendations G.9960, G.9961, G.9962, G.9963 and G.9964). It also includes support for 200MHz coaxial; 200MHz phone line SISO, 100MHz phone line MIMO; and 100MHz powerline MIMO. By using MaxLinear G.hn Wave-2 solutions, system designers can build products that easily achieve HomeGrid Forum certification for G.hn compliance.

This networking solution achieves gigabit performance and includes three options for G.hn digital baseband (DBB) processor (88LX5152, 88LX5153 and 88LX5153A) and three options for G.hn analog front end (AFE) (88LX2720, 88LX2730, and 88LX2741). The product family provides system designers the flexibility to mix and match footprint-compatible components to address multiple G.hn applications in the consumer, broadband, industrial and security segments.

# G.hn Wave-2 Networking Products

## APPLICATIONS

- Home Networking & Broadband
  - Gateways, Routers, STBs, WiFi Extenders
- Factory Automation
- Smart Buildings
  - Smart Elevators, Door Security Systems
- Smart Grid and Smart Metering
- Smart Cities
  - Security Cameras, Intelligent Street Lights

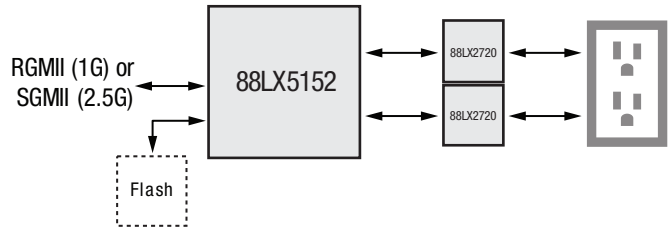
The G.hn baseband processors include the G.hn PHY (physical layer), G.hn DLL (data link layer), embedded CPU for control and management purposes, embedded memory and two Ethernet interface options: either RGMII (1 Gbps) or SGMII (1Gbps and 2.5Gbps).

The G.hn AFEs provide programmable transmit and receive paths optimized for each physical medium, with 88LX2720 supporting powerline applications; 88LX2730 supporting coax cables and twisted-pair applications; and 88LX2741 supporting powerline, coax cable and twisted-pair applications over the industrial temperature range.

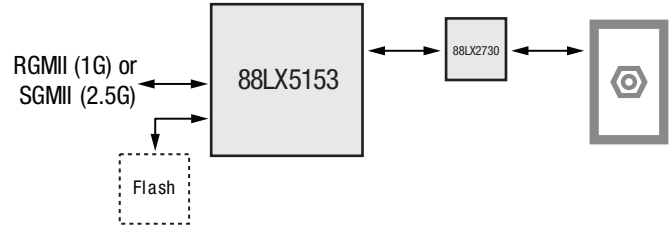
MaxLinear provides several turn-key software packages (codenamed Spirit) that enable customers to quickly go to market with a fully functional product that meets key requirements such as IPv4/IPv6 support, QoS, TR-069 management, IGMP/MLD snooping and HomeGrid Forum certification. Customers can also use the Spirit SDK to develop customized applications that run on the embedded CPU.

An evaluation kit is available for each wired medium; powerline, phone line/twisted-pair and coaxial cable. These kits include everything needed to evaluate the real world performance of our industry leading G.hn technology.

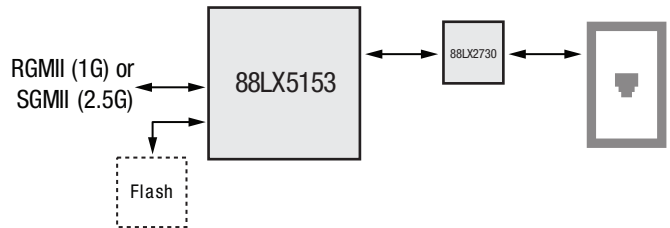
## Powerline MIMO (100MHz)



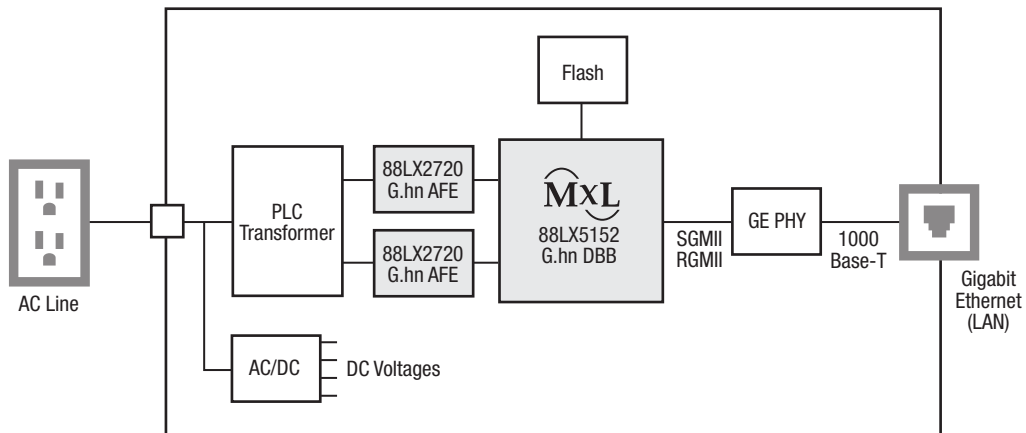
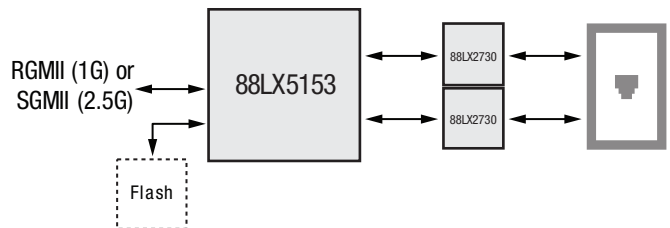
## Coax (200MHz)



## Phone Line SISO (200MHz)



## Bonded Phone Line MIMO (100MHz)



Application Example: Powerline/Ethernet Adapter

# G.hn Wave-2 Networking Products

## G.hn Wave-2 Networking Products

Part Number	Function	Ch.	Physical Medium	Supported G.hn Profiles	Max Net Throughput (Gbps)	Data Interfaces	Ordering Part Number <sup>(1)</sup>	Temp Range <sup>(2)</sup> (°C)	Package <sup>(3)</sup> (mm)
88LX5152	Baseband	2	Powerline	MIMO 100MHz, SISO 100MHz	1	RGMII (1G), SGMII (1G/2.5G)	88LX5152A0-BUU2C000	0 to 70	10 x 10 BGA-186
88LX5153	Baseband	2	Powerline	MIMO 100MHz, SISO 100MHz	1	RGMII (1G), SGMII (1G/2.5G)	88LX5153A0-BUU2C000	0 to 70	10 x 10 BGA-186
			Phone Line	SISO 200MHz, MIMO 100MHz	1.7				
			Coaxial	Coaxial 200MHz	1.7				
88LX5153A	Baseband	2	Powerline	MIMO 100MHz, SISO 100MHz	1	RGMII (1G), SGMII (1G/2.5G)	88LX5153A0-BUU2I000	-40 to 70	10 x 10 BGA-186
			Phone Line	SISO 200MHz, MIMO 100MHz	1.7				
			Coaxial	Coaxial 200MHz	1.7				
88LX2720	Analog Front End	1	Powerline	MIMO 100MHz, SISO 100MHz	N/A	N/A	88LX2720A0-NYC2C000	0 to 70	4 x 4 QFN-28
88LX2730	Analog Front End	1	Coaxial	SISO 200MHz	N/A	N/A	88LX2730A0-NYC2C000	0 to 70	4 x 4 QFN-28
			Phone Line	SISO 200MHz, MIMO 100MHz	N/A				
88LX2741	Analog Front End	1	Powerline	MIMO 100MHz, SISO 100MHz	N/A	N/A	88LX2741A0-NYC2I000	-40 to 70	4 x 4 QFN-28
			Coaxial	SISO 200MHz	N/A				
			Phone Line	SISO 200MHz, MIMO 100MHz	N/A				

1. Refer to individual product pages on [www.exar.com](http://www.exar.com), for most up-to-date Ordering Information.

2. Ambient temperature range.

3. Lead-free, visit [www.exar.com](http://www.exar.com) for additional information on Environmental Rating.

## G.hn Wave-2 Networking Evaluation Kits

Eval Kit	Physical Medium	Supported G.hn Profiles	Max Net Throughput	Data Interfaces	Baseband Chip Used	Analog Front-End Used	Kit Ordering Number <sup>(1)</sup>	# of Boards in Kit	Temp Range (°C)
DW920	Powerline (110/220V AC)	MIMO 100MHz, SISO 100MHz	1000Mbps	1000Base-T	88LX5152	88LX2720 (2x)	RD-HNPLC-2DW920KIT01	2	0-40
DGP962C	Coaxial (F-Connector)	Coaxial 200MHz	1700Mbps	1000Base-T, SFP	88LX5153	88LX2730	RD-HNCOAX2DGP962CKIT	2	0-40
DGP962P	Phone Line (RJ-11/RJ-45)	MIMO 100MHz, SISO 200MHz	1700Mbps	1000Base-T, SFP	88LX5153	88LX2730 (2x)	RD-HNPH2DGP962KIT-01	2	0-40

1. Refer to individual product pages on [www.exar.com](http://www.exar.com), for most up-to-date Ordering Information.

# G.hn Wave-2 Networking Products

## G.hn Wave-2 Networking Evaluation Kits (Continued)



Powerline Networking Evaluation Kit #DW920



Coaxial Networking Evaluation Kit #DCP962C



Phone Line Networking Evaluation Kit #DCP962P



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