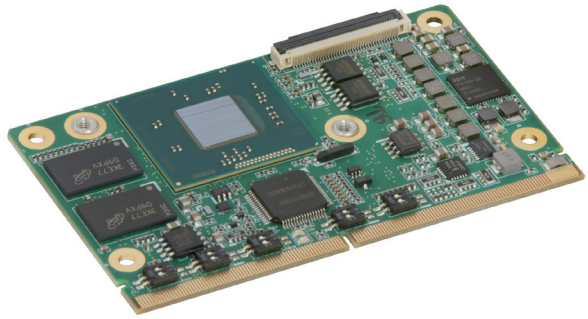
LEC-BW

SMARC® Short Size Module with Intel® Pentium™ and Celeron™ Processor N3000 Series System-on-Chip

Features

- Dual or quad-core Intel® Pentium™ and Celeron™ Processor N3000 Series SoC
- Up to 8 GB DDR3L at 1333/1600 MT/s
- LVDS, HDMI and DP
- 2x camera interfaces, GbE
- 1x SDIO/SD/MMC, 2x SATA3 6Gbit/s, 1x USB 3.0, 2x USB 2.0, 12x GPIO, 2x SPI, 4x I2C



Specifications

Core System

CPU

Intel® Pentium™ N3710, 4 cores, 1.6GHz, 6W TDP
Intel® Celeron™ N3160, 4 cores, 1.6GHz, 6W TDP
Intel® Celeron™ N3060, 2 cores, 1.6GHz, 6W TDP
Intel® Celeron™ N3010, 2 cores, 1.0GHz, 4W TDP
Intel® Atom™ x5-E8000, 4 cores, 1.0GHz, 5W TDP

Memory

Up to 8 GB DDR3L at 1333/1600 MT/s single channel, 64bit

Embedded BIOS

AMI UEFI with CMOS backup in 8 MB SPI BIOS, Fast Boot support

Cache

512 kB to 2 MB L2 cache

SEMA Board Controller

Supports: Voltage/Current monitoring, Power Sequencing, Logistics and Forensic Information, Flat Panel Control, I²C Bus Control, GPIO Control, User Flash, Failsafe BIOS (dual BIOS), Watchdog Timer and Fan Control

Audio

Chipset

Intel® HD Audio integrated in SOC

Ports

I²S and HDA for audio codec on carrier

Ethernet

Intel® MAC/PHY

1x Intel® i210IT Ethernet controller

Interface

10/100/1000 GbE

Video

GPU Feature Support

8th generation Intel® graphics core architecture with sixteen execution units, supports three independent displays 4K video (up to 3840 x 2160 @ 30fps), 2D and 3D graphics hardware acceleration
Support for DirectX 12/11.2, OpenGL 4.2/3.3, OpenCL 1.2
Video decode HW acceleration for H.265, H.264, MPEG2, MVC, VC-1, WMV9, JPEG, VP8
Video encode HW acceleration for H.264, MVC, JPEG

LVDS

Single channel 18/24-bit LVDS

HDMI

HDMI (3840 x 2160 @ 30Hz)

Custom option

3rd display HDMI/DP, 2nd LVDS channel

I/O Interfaces

PCIe

3x PCIe x1 Gen2

USB

1x USB 3.0 host, 2x USB 2.0 host, 1x USB 2.0 client

SATA

2x SATA3 6 Gbit/s

Flash storage

1x SDIO (4bit), 1x eMMC (8bit)

GPIO

12x GPIO

Camera

2x MIPI CSI 4L/2L

Serial

2x SPI, 4x I²C, 2x UART, 1x SMBus, 1x LPC, 1x DB40

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Power

Standard Input
3.0 V ~ 5.25 V DC ±5%

Power States
Supports C0-C6, S0, S3, S4, S5

Mechanical and Environmental

Form Factor
SMARC Specifications v1.1

Dimension
SMARC short size module, 82 mm x 50 mm

Operating Temperature
Standard: 0°C to +60°C

Humidity
5-90% RH operating, non-condensing
5-95% RH storage (and operating with conformal coating)

Shock and Vibration
IEC 60068-2-64 and IEC-60068-2-27, MIL-STD-202 F, Method 213B, Table 213-I, Condition A and Method 214A, Table 214-I, Condition D

HALT
Thermal Stress, Vibration Stress, Thermal Shock and Combined Test

Operation System

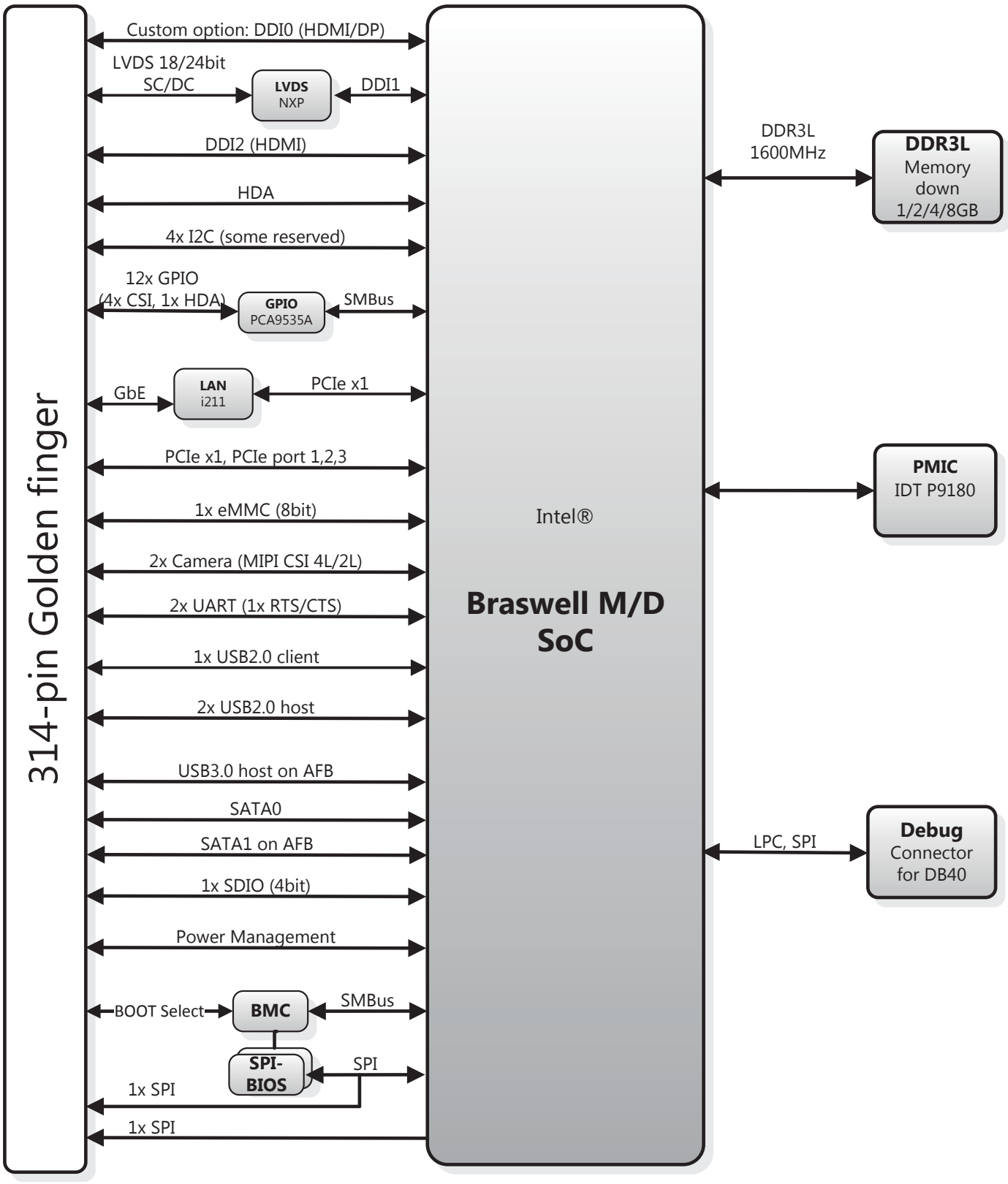
Standard Support
Windows 7/8.1/10, Linux, Android

On Request
QNX, Android

Intelligent Middleware

SEMA®
Local management, control of embedded computer systems Extended EAPI for monitoring, controlling and analytics applications Multiple OS support and across platforms (x86, ARM)

Functional Diagram



Ordering Information

- **LEC-BW42-4G-CT**
  SMARC Short Size Module with Intel® Pentium™ N3710, Quad core, 4 GB DDR3L, 0°C to 60°C
- **LEC-BW41-4G-CT**
  SMARC Short Size Module with Intel® Celeron™ N3160, Quad core, 4 GB DDR3L, 0°C to 60°C
- **LEC-BW21-2G-CT**
  SMARC Short Size Module with Intel® Celeron™ N3010, Dual core, 2 GB DDR3L, 0°C to 60°C
- **LEC-BW22-2G-CT**
  SMARC Short Size Module with Intel® Celeron™ N3060, Dual core, 2 GB DDR3L, 0°C to 60°C
- **LEC-BW43-4G-CT**
  SMARC Short Size Module with Intel® Atom™ x5-E8000, Quad core, 4 GB DDR3L, 0°C to 60°C
- **LEC-BW42-8G-CT**
  SMARC Short Size Module with Intel® Pentium™ N3710, Quad core, 8 GB DDR3L, 0°C to 60°C
- **LEC-BW-HS**
  Heatspreader for LEC-BW
- **LEC-BW-HS2**
  Passive Heatsink for LEC-BW

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