



ADM5120

HOME GATEWAY CONTROLLER

Product Overview

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About this Manual

Structure

This Product Overview contains 2 chapters

Chapter 1 Product Overview

Chapter 2 Packaging

Customer Support

ADMtek Incorporated,
2F, No.2, Li-Hsin Rd.,
Science-based Industrial Park,
Hsinchu, 300, Taiwan, R.O.C.

Sales Information

Tel + 886-3-5788879
Fax + 886-3-5788871

Table of Contents

CHAPTER 1 PRODUCT OVERVIEW	1-1
1.1 OVERVIEW	1-1
<i>1.1.1 Product Order Information.....</i>	<i>1-1</i>
1.2 FEATURES	1-2
CHAPTER 2 PACKAGING	2-1
2.1 BALL GRID ARRAY (BGA) 324-PIN.....	2-1
2.2 PLASTIC QUAD FLAT PACK (PQFP) 208-PIN	2-2

Chapter 1 Product Overview

1.1 Overview

ADM5120 is a high performance, highly integrated, and highly flexible SOC (System-On-Chip) that facilitates the functionalities of SOHO/SME Gateway, NAT Router, Print Server, WLAN Access Point, and VPN Gateway. ADM5120 enables the sharing of IP-based broadband services throughout the home/office using wired/wireless computers, entertainment equipment, printers, and other intelligent devices.

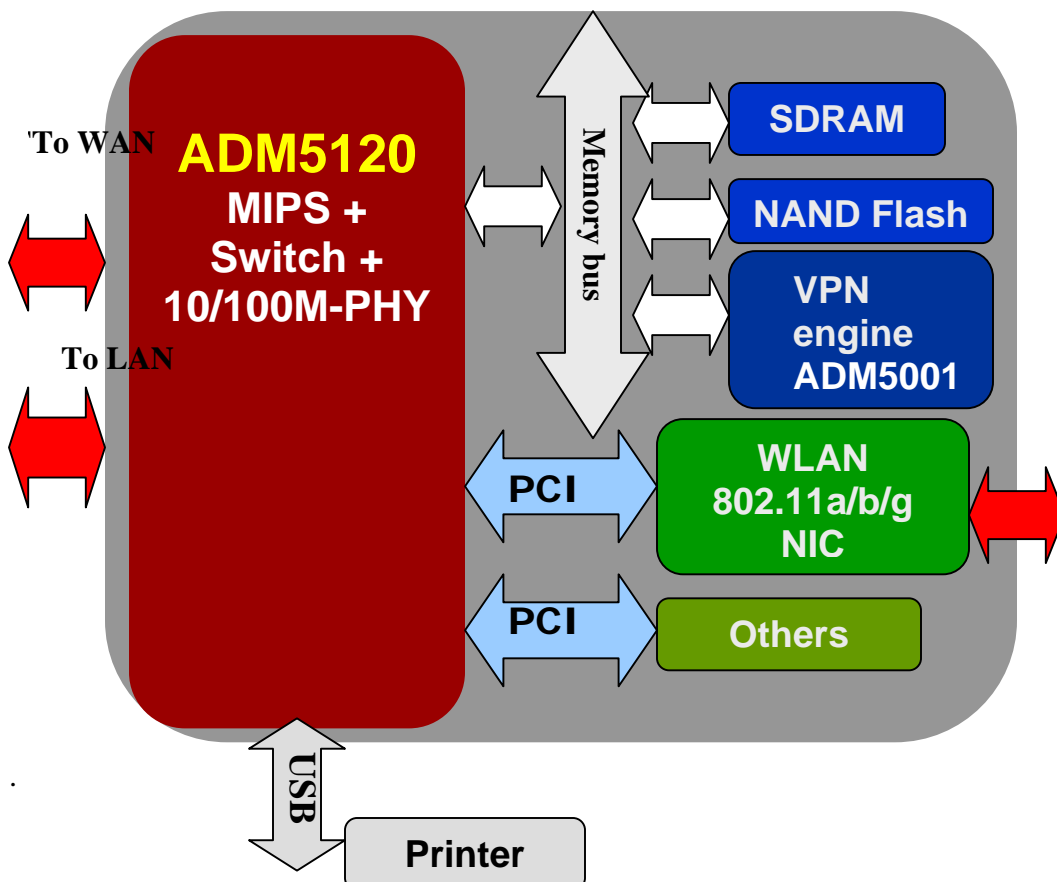
Internally, the ADM5120 ASIC consists of a high performance (227 MIPS) embedded MIPS CPU, an embedded switch engine, 10/100M PHY, an embedded PCI bridge, an embedded USB host, and interfaces for UART, SDRAM, Flash and VPN engines. The following diagram illustrates a system configuration that uses the supported functionalities/facilities of ADM5120.

1.1.1 Product Order Information

The ADM5120 comes in two packaging formats as follows:

Section 2.1 Ball Grid Array (BGA) 324-pin

Section 2.2 Plastic Quad Flat Pack (PQFP) 208-pin



1.2 Features

ASIC Features

Processor

- MIPS 4Kc CPU
- Embedded cache, 8K-byte I-cache, 8K D-cache
- Embedded memory management unit (MMU) – 32-entry TLB, organized as 16 entry pairs
- 175 MHz/227 MIPS
- Two bank support (2 chip select pins)
- Each bank can support -- 1Mx32 up to 32Mx32bit (128M-byte)

Flash

- NAND Flash boot (*)
- NOR Flash boot: Two bank support (2 chip select pins)
- NOR Flash boot: Each bank can support – 1Mx8-bit, up to 1Mx32-bit (4M-byte)

Network

- 6 ports
 - IEEE 802.3 Fast Ethernet
 - 5 auto-MDIX (auto-crossover) twisted paired LAN interfaces, embedded 10/100M PHY
 - 1 GMII(*)/MII interface
 - Flexible WAN port selection
- Embedded switch engine
 - Embedded Data-buffer/Address-look-up table
 - Look-up table read/write-able
 - MAC layer security
 - MAC clone solution
 - Multicast grouping (IGMP)
 - MAC filtering, Bandwidth control
- Class of Services (CoS) with two priority levels
- Shared dynamic data buffer management, embedded SSRAM
- Port grouping VLAN (overlap-able)
- TCP/IP accelerator

System

- UART interface (support MODEM interface)
- PCI bridge that supports 3 master devices (*)
- GPIO (**)
- USB 1.1 host
- Clock source
 - 25MHz crystal for 10/100
 - 48MHz crystal for USB
- 0.18u CMOS process
- 1.8V/3.3V dual power
- BGA/PQFP

VPN interface toADM5001

*** Available in BGA only, not PQFP**
**** PQFP has 4 GPIO pins v.s. BGA has 8 pins.**

Memory interface

- SDRAM

Software Features

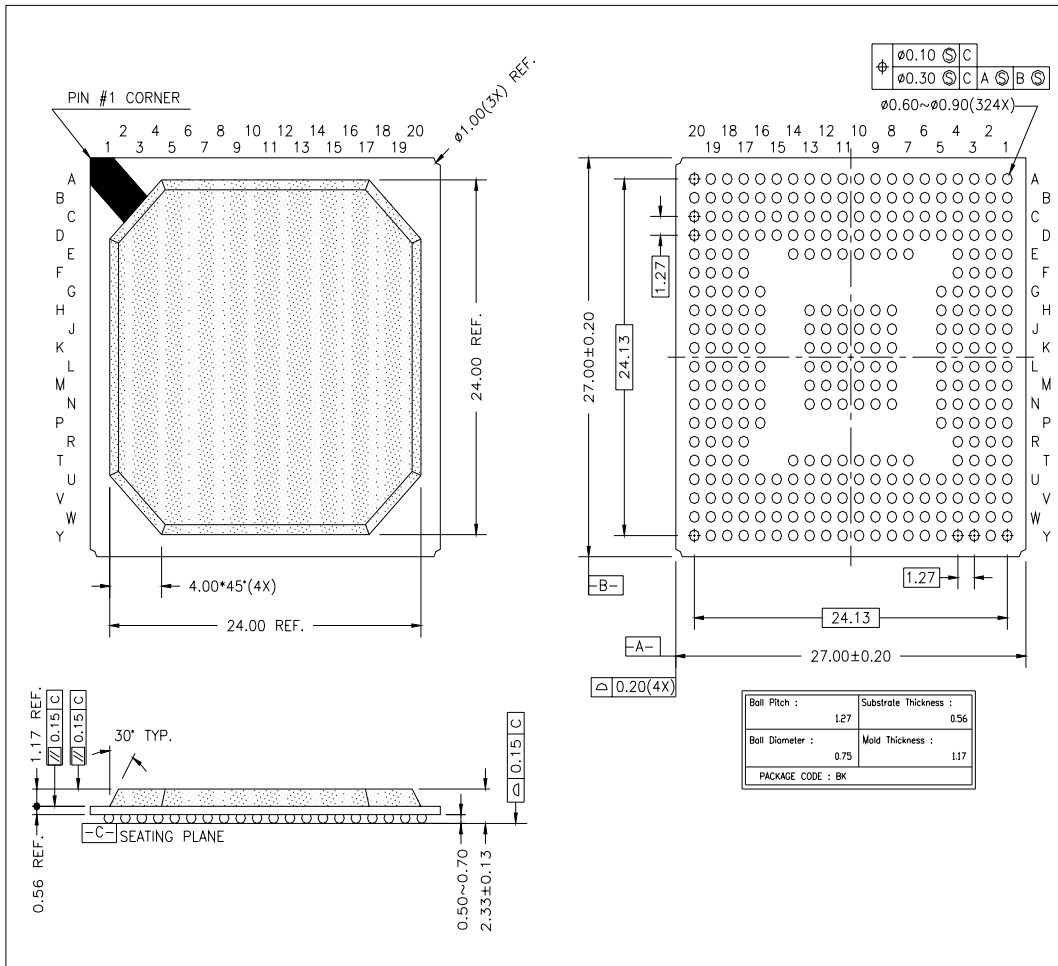
- Linux/ECOS (Embedded Configurable OS) Real-Time OS
- Linux-based and ECOS-based turn key support
- Telnet
- IEEE 802.3 Ethernet Driver
- IEEE 802.11 WLAN Driver
- RS232 Driver for Console User Interface
- DHCP Server/Client
- PPP over Ethernet (PPPoE)
- Network Address Translation (NAT) for IP Address Mapping/Sharing/Security
- DNS Proxy
- Simple Network Time Protocol (SNTP)
- Firewall
- Web-Based Configuration: WEB and HTTP
- TFTP upload/download

Typical Applications

- IEEE 802.3 SOHO/SME Gateway
- NAT Router
- Single band 802.11g Access Point (through PCI bus: 5120+802.11g NIC)
- Multiple band 802.11a/b/g Access Point (through PCI bus: 5120+802.11a/b/g NIC)
- Print Server (through USB1.1)
- VPN Gateway (through memory bus: 5120+5001)
- 12-port SME Gateway (through GMII: 5120+6999U)

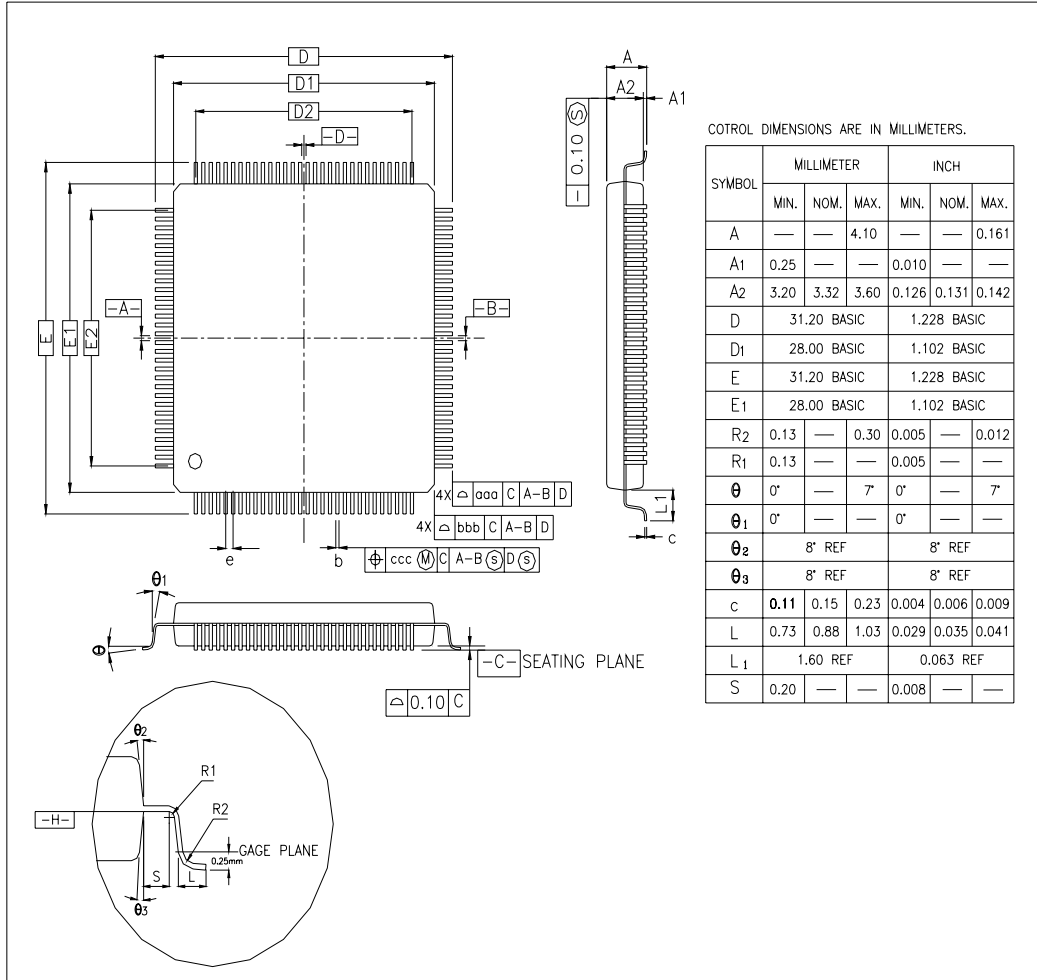
Chapter 2 Packaging

2.1 Ball Grid Array (BGA) 324-pin



Note: Scale = mm

2.2 Plastic Quad Flat Pack (PQFP) 208-pin



Note: Scale = mm

Symbol	MILLIMETER			INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
b	0.17	0.20	0.27	0.007	0.008	0.011
e	0.50 BSC.			0.020 BSC.		
D2	25.50			1.004		
E2	25.50			1.004		
aaa	0.25			0.010		
bbb	0.20			0.008		
ccc	0.08			0.003		