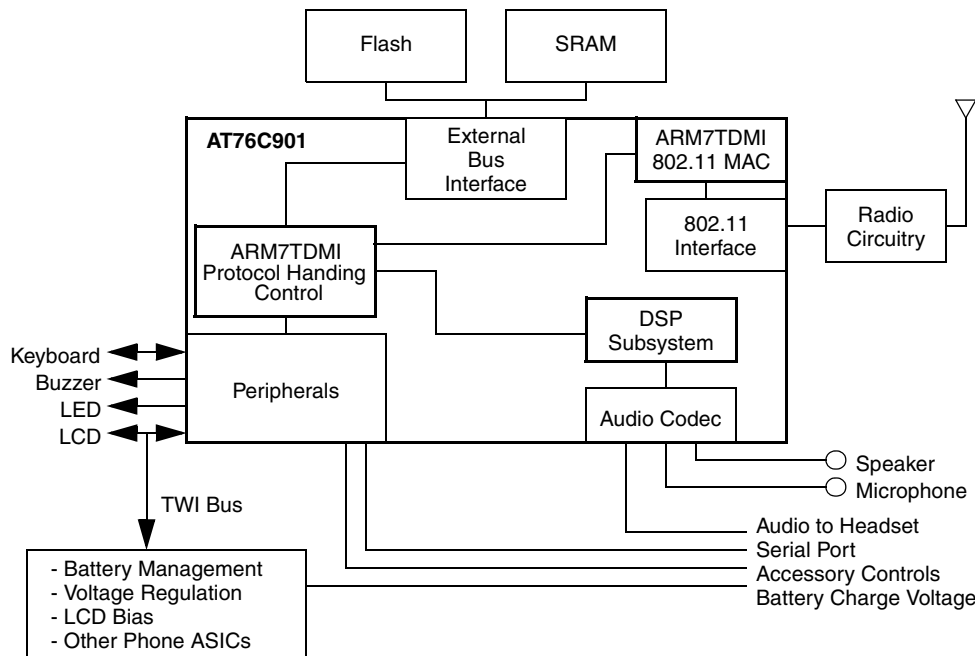


Features

- ARM7TDMI® Core for Implementing Call Control Protocols (SIP, H.323, MGCP/MEGACO) TCP/IP and Controlling the Phone Functions
- Internal 8-Kbyte Program and Data Cache Used for Fast Execution of the Communications Protocols and RTOS with Reduced Power Consumption
- 16-bit DSP for Implementing the G.723.1, G.729ab, and G.711 Standards, in Addition to Acoustic Echo Cancellation
- Integrated Audio Codec with Both Main and Auxiliary Paths
- Wireless Interface Following the IEEE 802.11b Standard
- Wireless LAN MAC Unit with ARM7TDMI RISC Processor
- Glueless External Memory Interface Supporting Up to 16 Mbytes of External SRAM/Flash and 32 Mbytes of SDRAM
- Glueless Interface to 11 Mbps External 802.11-based Baseband Processor
- Enciphering/Deciphering of Wireless Data On-the-fly, by the Implementation of the RC4 Code Ensures Maximum Privacy of Data
- Supports 11 Mbps Rates with Automatic Fallback to 5.5, 2, and 1 Mbps
- USB Slave Interface (Control, Interrupt, Bulk-in, and Bulk-out Endpoints)
- Analog-to-Digital Converter with Up to 400K Samples/Sec on Two Input Channels
- One USART and One UART
- Serial Peripheral Interface (SPI)
- 64-key Keyboard Interface
- 4 x 4 LED Matrix Controller
- Minimum of 13 GPIO Pins (More are Available Based on Configuration)
- 217-pin PBGA Package
- Low-voltage 3.3 V Operation

Figure 1. Typical Application Using The AT76C901



Wireless VoIP Phone-based on the 802.11 Standard Processor

AT76C901 Summary

1652AS-VoIP-06/04



Note: This is a summary datasheet. A complete document is available under NDA. For more information, please contact your local Atmel Sales Office.



Description

The AT76C901 is highly integrated ASIC that can be used as a part of a wireless phone that utilizes an 802.11 LAN-based wireless medium and carries Voice over IP (VoIP) packets. Specified in this datasheet, an ARM[®] processor-based subsystem (Baseband Controller) performs most of the PLCP and low MAC functions defined in 802.11. A DSP, a Codec, and support circuitry perform the encoder function and interfacing to an external baseband processor for a DSSS system. An interrupt controller and multiple support peripherals are also included.

Applications

The VoIP baseband device is intended to be used in a wireless phone which operates by encapsulating voice data within IP frames and transmitting the frames over a contention-based wireless medium. Specifically, the first application of the device is targeted at a wireless phone operating on an 802.11 wireless LAN at 2.4 GHz. Figure 1 shows an example of the device being utilized in a wireless phone.

Assumptions

The AT76C901 device can be used in a wireless phone powered by battery cells. The device does not incorporate any access point type features, such as antenna diversity or Ethernet interfaces.

Pin Diagram

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
A	MA	MA6	MA7	MA8	MA9	MA11	MA15_QL	MA16_QU	MA19_CKE	MA20_C4C	LD7	UD0	UD1	UD2	UD3	UD4	UD5
B	MA4	GND15	MA0_NLB	MA10	MA12	MA13	MA14	NCS0	MA18_RAS	MA17_CAS	NWR0_NWE	LD6	LD5	LD4	LD3	GND14	UD6
C	VDDP8	MA2	GND13	MA1	NCS3	NCS2	NCS1	TDIA	NRD_NOE	NWR1_NUB	CKE	SDCLK	SDCS	LD2	GND12	LD1	LD0
D	VCM	MA3	RESET	GND11	TMSA	TDOA	VDDP0	VDDC7	GND10	VDDC6	LFTA	VDDP1	BBRnW_PLL	GND9	UD7	CLKO	BBRX_DAE
E	MIC_P	IREF	AVDD1	GP15										BBCS_CLK	CLKI	BBTX_DAE	CALEN_PA
F	SPKR_P	MIC_N	AUX_IN	AVDD2										BBRST_AD	VDDP2	TCKA	TRSTA
G	MICBIAS	SPKR_N	VBG	AUX_OUT										GP13	GP14	CCA_RSSI	TCLK_RD0
H	AGND2	AGND1	MICSET	VDDC5				GND16	GND17	GND18				VDDC4	TXDATA	TXPE	TXRY_RD1
J	AVDD3	AVDD4	ADC0	GND8				GND19	GND20	GND21				GND7	MRDY_RD2	RXDT_RD4	RXCL_RD3
K	ADC1	AREFP	AGND3	VDDC3				GND22	GND23	GND24				VDDC2	TR_SWITB	RADIO_PE	RXPE
L	AGND4	VDDP7	GP7	WKP										SYNCLK	SYNDAT	SYNLE0	TR_SWIT
M	GP6	GP5	GP3	GP1_INT8										TDIA2	GP11	VDDP3	SYNLE1
N	GP4	TEST	GP0_INT7	VDDP6										SCL	TDOA2	GP12	TRSTA2
P	GP2_INT9	INT6	INT4	GND6	RW_GP3_0	RW_GP3_3	CL_GP4_3	VDDC1	GND5	VDDC0	LFTL	C1_GP6_2	C3_GP6_4	GND4	MO_GP5_7	TCKA2	TMSA2
R	INT5	INT3	GND3	RW_GP3_5	RW_GP3_1	CL_GP4_1	CL_GP4_0	CL_GP4_6	A2_GP2_6	DP	VDDP4	TO1_GP5_3	C0_GP6_1	SC1_GP6_6	GND2	ML_GP5_6	SDA
T	INT2	GND1	RW_GP3_7	RW_GP3_6	VDDP5	CL_GP4_5	CL_GP4_2	C_GP2_2	C_GP2_0	A9_GP2_4	USBP	TIN_GP5_1	TO2_GP5_4	SC_GP6_0	RXD0	GND0	TXD1
U	INT1	INT0_OSC	RW_GP3_2	RW_GP3_4	CL_GP4_4	CL_GP4_7	C_GP2_3	C_GP2_1	A3_GP2_7	A1_GP2_5	DM	TIN_GP5_0	TO0_GP5_2	TO3_GP5_5	C2_GP6_3	TXD0	RXD1



Atmel Corporation

2325 Orchard Parkway
San Jose, CA 95131, USA
Tel: 1(408) 441-0311
Fax: 1(408) 487-2600

Regional Headquarters

Europe

Atmel Sarl
Route des Arsenalux 41
Case Postale 80
CH-1705 Fribourg
Switzerland
Tel: (41) 26-426-5555
Fax: (41) 26-426-5500

Asia

Room 1219
Chinachem Golden Plaza
77 Mody Road Tsimshatsui
East Kowloon
Hong Kong
Tel: (852) 2721-9778
Fax: (852) 2722-1369

Japan

9F, Tonetsu Shinkawa Bldg.
1-24-8 Shinkawa
Chuo-ku, Tokyo 104-0033
Japan
Tel: (81) 3-3523-3551
Fax: (81) 3-3523-7581

Atmel Operations

Memory

2325 Orchard Parkway
San Jose, CA 95131, USA
Tel: 1(408) 441-0311
Fax: 1(408) 436-4314

Microcontrollers

2325 Orchard Parkway
San Jose, CA 95131, USA
Tel: 1(408) 441-0311
Fax: 1(408) 436-4314

La Chantrerie
BP 70602
44306 Nantes Cedex 3, France
Tel: (33) 2-40-18-18-18
Fax: (33) 2-40-18-19-60

ASIC/ASSP/Smart Cards

Zone Industrielle
13106 Rousset Cedex, France
Tel: (33) 4-42-53-60-00
Fax: (33) 4-42-53-60-01

1150 East Cheyenne Mtn. Blvd.
Colorado Springs, CO 80906, USA
Tel: 1(719) 576-3300
Fax: 1(719) 540-1759

Scottish Enterprise Technology Park
Maxwell Building
East Kilbride G75 0QR, Scotland
Tel: (44) 1355-803-000
Fax: (44) 1355-242-743

RF/Automotive

Theresienstrasse 2
Postfach 3535
74025 Heilbronn, Germany
Tel: (49) 71-31-67-0
Fax: (49) 71-31-67-2340

1150 East Cheyenne Mtn. Blvd.
Colorado Springs, CO 80906, USA
Tel: 1(719) 576-3300
Fax: 1(719) 540-1759

Biometrics/Imaging/Hi-Rel MPU/ High Speed Converters/RF Datacom

Avenue de Rochepleine
BP 123
38521 Saint-Egreve Cedex, France
Tel: (33) 4-76-58-30-00
Fax: (33) 4-76-58-34-80

Literature Requests

www.atmel.com/literature

Disclaimer: Atmel Corporation makes no warranty for the use of its products, other than those expressly contained in the Company's standard warranty which is detailed in Atmel's Terms and Conditions located on the Company's web site. The Company assumes no responsibility for any errors which may appear in this document, reserves the right to change devices or specifications detailed herein at any time without notice, and does not make any commitment to update the information contained herein. No licenses to patents or other intellectual property of Atmel are granted by the Company in connection with the sale of Atmel products, expressly or by implication. Atmel's products are not authorized for use as critical components in life support devices or systems.

© Atmel Corporation 2004. All rights reserved. Atmel® and combinations thereof are the registered trademarks of Atmel Corporation or its subsidiaries. ARM® and ARM7TDMI® are the registered trademarks of ARM, Ltd. Other terms and product names may be the trademarks of others.



Printed on recycled paper.

1652AS-VoIP-06/04