agere systems

Product Brief Rev. 1
December 2004

DP2 Data Pump Chip Sets

Features

- Two-chip modem solutions:
  - — DP2xxx in 48-pin TQFP.
  - — CSP1034S in a 48-pin TQFP package or CSP1035A in a 48-pin TQFP package.
- Data mode capabilities range: 2400 bits/s—56000 bits/s.
- FAX mode capabilities range: 2400 bits/s—33600 bits/s.
- Integrated DP2V data pump device:
  - — Integrated DSP and interface device.
  - — ISA-like microcontroller interface.
  - — Call progress speaker driver.
  - — Internal PLL allows low-speed crystal.
- Compatible with transformer-based and silicon DAA circuits:
  - — High-precision sigma-delta codec (CSP1034S).
  - — Line-powered silicon DAA (CSP1035A).
- Caller identification (caller ID) support for Bell 202 and V.23 frequencies.
- Low-power modes.
- Requires only a single 3.3 V supply.
- Six user-definable bit I/Os.
- Object code compatible with the DPV family.
- *IEEE*® P1149.1 test port (JTAG boundary scan).
- All DP2xxx products are pin for pin compatible with the DP2V product line.

Introduction

The new DP2 family of devices is designed to serve embedded applications such as FAX machines and set-top boxes in which a separate modem microcontroller is not required, e.g., where a suitable system controller is already available to perform protocol processing. The DP2 family includes the following five devices:

- DP2L17X supports V.17/V.29 (and lower) FAX modes.
- DP2L34D supports V.34 data and V.17/V.29 (and lower) FAX modes.
- DP2L34X supports V.34 FAX as well as V.17/V.29 (and lower) FAX rates for FAX-only applications.
- DP2V90DX supports V.92, V.90/V.34 data, and V.34/V.17/V.29 FAX.

Each DP2xxx data pump in the series combines a specialized feature set with a small footprint and minimal power requirements. Each device is optimized for a specific application where power constraints and system cost are driving factors in development. DP2xxx modem solutions do not require external memory and are ideal for applications that require a world-class international data/FAX/voice modem solution at a low cost.

Functional Description

The Agere Systems DP2 chip set is a two-chip solution consisting of an Agere Systems DP2xxx data pump and a CSP1034S or CSP1035A. The DP2xxx devices support FAX modes at rates up to 33.6 kbits/s. The DP2V90DX device also supports V.90 and V.92 technology for data rates up to 56 kbits/s. A block diagram of the DP2xxx data pump chip set is illustrated in Figure 1 and Figure 2.

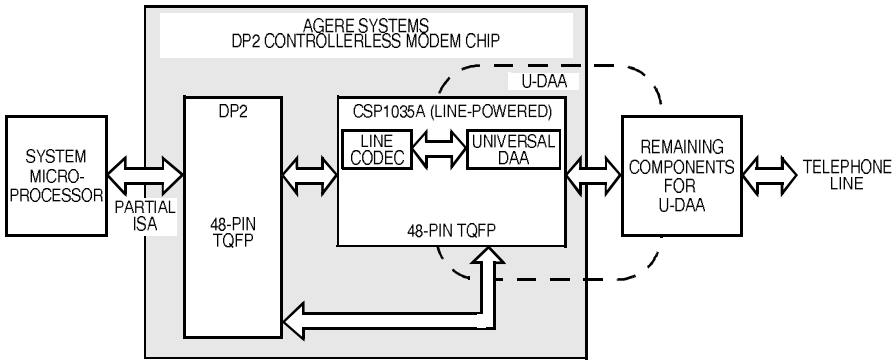


Figure 1. DP2xxx + CSP1035A Universal DAA Chip Set Block Diagram

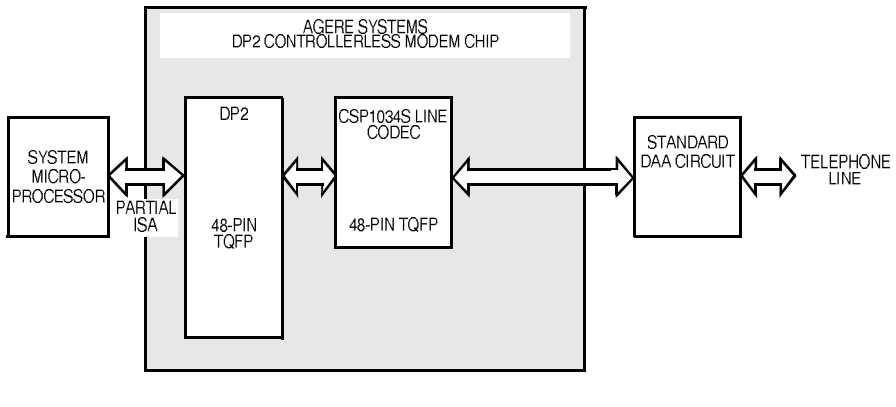


Figure 2. DP2xxx + CSP1034S Chip Set Block Diagram

V.92 and V.90 Technology

The DP2V90DX supports ITU-T recommendations V.92 and V.44. V.92 and V.44 have four innovative features designed to improve modem performance in the Internet environment:

- Modem fast connect: faster start-up times.
- Modem on hold*: switch between modem and an incoming phone call without losing the data connection.
- PCM upstream: send data to central site at rates approaching 48 kbits/s.
- Data compression: enhancement focused on today's Internet traffic.

* This feature is dependent on country-specific call waiting tones. Not all countries are supported.

Functional Description (continued)

Data and FAX Capabilities

The DP2 family of data pumps supports a variety of communication standards and features. Each DP2 device is specialized to a specific application or features set. For example, the ROM-coded DP234X is specialized for FAX-only applications. The following is a breakdown of the FAX and data features supported by each member of the DP2 family of chips.

Table 1. DP2xxx Features

	DP2L17X	DP2L34X	DP2L34D	DP2V90DX
Data Mode Capabilities				
ITU-T V.92: 56000 bits/s—28000 bits/s (PCM)				✓
ITU-T V.90 upstream: 56000 bits/s—28000 bits/s (PCM)				✓
ITU-T V.90 downstream: 33600 bits/s—2400 bits/s (TCM)				✓
ITU-T V.34: 33600 bits/s—2400 bits/s (TCM)			✓	✓
ITU-T V.32*bis*: 14400, 12000, 9600, 7200 (TCM), 9600, 4800 (QAM)			✓	✓
ITU-T V.32: 9600 (TCM), 9600, 4800 (QAM)			✓	✓
ITU-T V.22*bis*: 2400 bits/s (QAM)			✓	✓
ITU-T V.22: 1200 bits/s (QAM)			✓	✓
ITU-T V.23: 1200/75 (FSK)			✓	✓
ITU-T V.21: 300 (FSK)			✓	✓
Bell 212A: 1200 (DPSK)			✓	✓
Bell 103: 300 (FSK)			✓	✓
FAX Mode Capabilities				
ITU-T V.34: 33600 bits/s—2400 bits/s (TCM)		✓		✓
ITU-T V.17: 14400 bits/s, 12000 bits/s, 7200 bits/s (TCM)	✓	✓		✓
ITU-T V.29: 9600 bits/s, 7200 bits/s (QAM)	✓	✓		✓
ITU-T V.27*ter*: 4800 bits/s, 2400 bits/s (DPSK)	✓	✓		✓
ITU-T V.21 channel 2: 300 (FSK)	✓	✓		✓
Error Mode and Data Compression				
V.42 error correction (LAPM and *MNP*®)			✓	✓
V.44 *bis* data compression				✓
V.42 *bis*, and *MNP* class five data compression			✓	✓
Data and FAX Interface				
ITU-T V.250 AT Command Set *	✓	✓	✓	✓
ITU-T T.31—Class 1 FAX *	✓	✓		✓
ITU-T T.32—Class 2 FAX *	✓	✓		✓

Notes:
PCM: Pulse-code modulation.

QAM: Quadrature amplitude modulation.

FSK: Frequency shift keying.

DPSK: Differential phase shift keying.

TCM: Trellis code modulation.

* Reference the *Agere Systems Controller-Based AT Command Reference Manual* for details on the supported commands.

Package Information

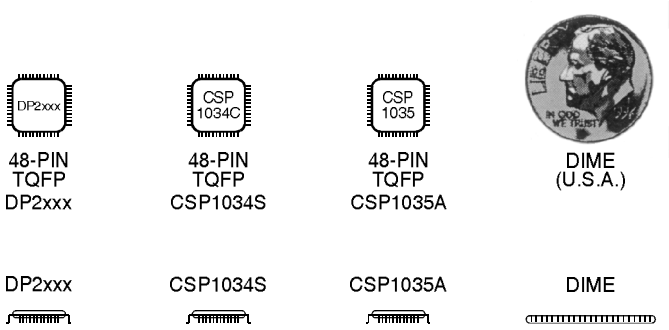


Figure 3. DP2V Chip Set Packaging

Ordering Information

Table 2. Chip Set Names and Part Numbers

Device	Description	Package	Part Number	Comcode
DP2L17X	Modem	48-pin TQFP	DP2L17XJTDJV-DB	700045394
DP2L34D	Modem	48-pin TQFP	DP2L34XJTDJV-DB	700045256
DP2L34X	Modem	48-pin TQFP	DP2L34DJTDJV-DB	700045396
CSP1034S	3.3 V codec	48-pin TQFP	CSP1034S-T11-DB	700058696
CSP1035A	Silicon DAA	48-pin TQFP	CSP1035A-T11-DB	108877069
L-DP2L34X*†	Lead-free modem	48-pin TQFP	L-DP2L34XJTDJV-DB	700069689
L-CSP1034S*†	Lead-free 3.3 V codec	48-pin TQFP	L-CSP1034S-T11-DB	700063460
L-CSP1035A*†	Lead-free silicon DAA	48-pin TQFP	L-CSP1035A-T11-DB	700060456

* Lead-free: No intentional addition of lead, and less than 1000 ppm.
† Agere Systems lead-free devices are fully compliant with the Restriction of Hazardous Substances (RoHS) directive that restricts the content of six hazardous substances in electronic equipment in the European Union. Beginning July 1, 2006, electronic equipment sold in the European Union must be manufactured in accordance with the standards set by the RoHS directive.

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