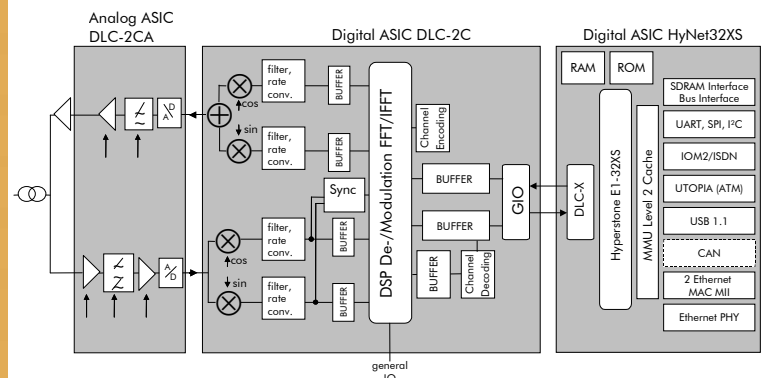


DLC-2C / CA

High Performance Narrow Band Communication Controller MCM (Multi Carrier Modulation) and Power Line Chipset

- Highly integrated System on Chip helps to reduce application costs
- Excellent DSP performance
- Versatile interface options
- Easy programmable DSP
- Programmable Logic Controller
- Communication via different media
 - high, medium and low voltage
 - special distribution lines (e.g. emergency power supply lines)
 - long distance or heavily disturbed 2-wire line
 - pipelines
- data rates up to 576 kbps
- regulation compliant communication (CENELEC / FCC)
- has an interface to the HyNet32XS digital ASIC which offers various additional interfaces



iAd GmbH

Gesellschaft für Informatik, Automatisierung und Datenverarbeitung mbH

Unterschlaubach Hauptstr. 10

D-90613 Großhabersdorf

Tel. +49 (0)9105 9960-0, Fax +49 (0)9105 9960 19

www.iad-de.com, info@iad-de.com

DLC-2C / CA

■ The ASIC DLC-2C / CA

chipset consists of one analog and one digital chip. The signal processing chip consists of a 16-bit digital signal processor, digital filters, synchronization unit, automatic gain control and de/encoder. The digital chip offers an interface to an additional digital chip which includes a control system with a 32-bit Hyperstone E1-32XS DSP/RISC-controller and numerous interfaces like Ethernet, USB, RS232, I²C, ISDN, SDRAM and ATM. For more information about the Hyperstone ASIC see HyNet32XS flyer.

■ Features

The DLC-2C/CA is a high performance narrow band communication controller and power line chipset.

The complete chipset consists of two digital and one analog ASIC. The characteristics of this chipset are:

- Communication via different media
 - high, medium and low voltage
 - special distribution lines (e.g. emergency power supply lines)
 - long distance or heavily disturbed 2-wire line
 - pipelines
- a frequency range of 9 to 490 kHz
- a bandwidth of 4 to 400 kHz freely configurable
- carrier frequencies freely configurable
- bandwidth efficiency from 0.5 to 2.9 bit/Hz
- data rates from 9.6 to 576 (288 CENELEC) kbps
- transmission with OFDM and FEC
- synchronous and asynchronous transfer mode
- compatible to Standards EN 50065(CENELEC), IEC 61000-3, FCC part 15 subpart B

■ Modulation

- digital mixing to equivalent baseband channel
- OFDM performed by complex FFT (128 ... 1024)
- cyclic prefix as guard interval
- differentially encoded symbols along subcarriers
- amplitude and phase shift keying
- demodulation for power-line typical noise

■ Coding

- 64-state convolutional code
- basic code rates 1/2 and 1/3
- several other code rates possible
- bit interleaving with soft information
- trace-back MLSE-decoder (Viterbi)
- each OFDM-symbol corresponds to a code word
- 32 bit CRC for error detection, or
- Reed Solomon code as 2nd FEC supported (only useful over long or several symbols)

■ Applications

- Power line communication
- PLC-Internet gateway
- Webserver
- Data concentrator
- Communication Master
- Energy quality monitoring
- Automation
- Telecontrol System

Technical Data

Microprocessor

16-Bit DSP	44-88 MHz
Hardwired Digital Signal Processing:	Encoder/Decoder Digital Filter AGC Synchronisation
Peripherals	Interrupt-Controller Power Management Processor Interface

Interfaces

General Purpose I/O to the DSP
Processor Interface to the HyNet32XS

Memory

SRAM 84 Kbyte (DSP)

Operational Voltage

1.8 V Core (DLC-2C), 3.3 V Core (DLC-2CA)
3.3 V I/O (DLC-2C/CA)

Analog Chip

Band-pass filter with programmable cut-off frequencies, for the transmission band ca. 30-490 kHz, respectively (digitally) programmable gain in the range of ca. -20 dB to 64 dB, high resolution ADC and DAC

Package

QFP144 (digital part)
QFP64 (analog part)

Dimension (L x W)

20 x 20 (digital part), 13 x 13 (analog part)