

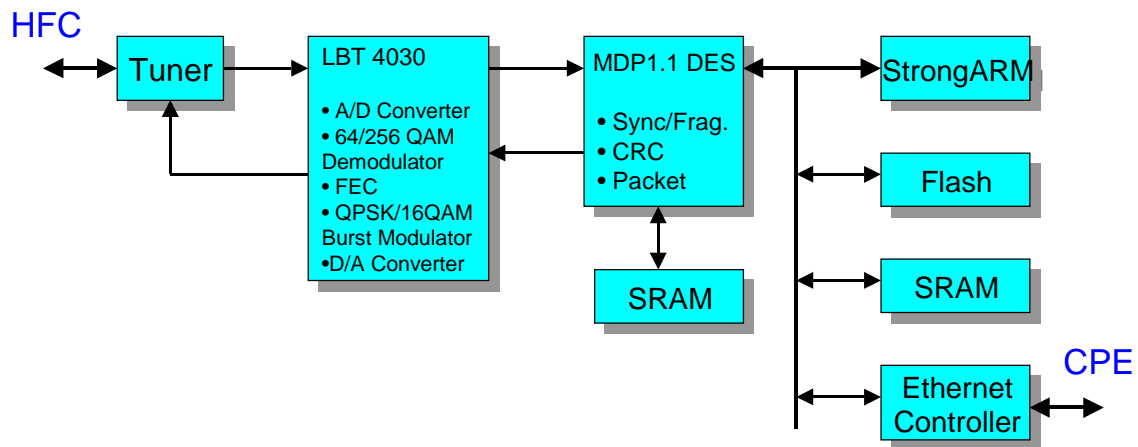
PCX1100 Product Specification

The following defines the technical specifications for the PCX1100 Cable Modem product.

Features

- a) CableLabs® Certified™ DOCSIS v1.0
 - Receiver: 64/256QAM, 88MHz to 860MHz and -15dBmV to +15dBmV
 - Transmitter: QPSK/16QAM, 5MHz to 42MHz and +8dBmV to +58dBmV
 - Frequency agile
- b) DOCSIS 1.1-based
- c) DOCSIS compliant ranging
- d) DOCSIS compliant contention and reservation mixed protocol including fragmentation
- e) DOCSIS 1.0 (BPI) and 1.1 (BPI+) compliant security
- f) Forward Error Correction (Reed-Solomon method)
- g) Small size and low power consumption
- h) OA&M functions support (through SNMP)
- i) Supports IEEE802.3/Ethernet 10BASE-T Interface
- j) Supports up to 16 CPEs (16 MAC addresses)
- k) Supports packet filtering
 - Hardware filtering of Destination Address at MAC layer
 - Up to 32 IP filters
 - Up to 16 LLC filters and 16 Ethernet filters

Block Diagram



Receiver Specification

Physical speed:	5.056941 Msym/sec (64QAM) 5.360537 Msym/sec (256QAM)
Modulation technique:	64QAM and 256QAM
Bandwidth:	6 MHz
Roll-off ratio:	root 18% cosine (64QAM) root 12% cosine (256QAM)
Frequency range:	88 to 860 MHz (edge-to-edge)
Frequency channel:	HRC, IRC or STD
Frequency selection:	automatic scanning
Input signal level:	-15 dBmV to +15 dBmV (Automatically Gain Controlled by CM)
Carrier lock range:	+/-30 KHz
Return loss:	> 6 dB

Transmitter Specifications

Physical speed:	variable: 2.56, 1.28, 0.64, 0.32, 0.16 Msym/sec
Modulation technique:	QPSK and 16QAM
Bandwidth:	variable: 3.2, 1.6, 0.8, 0.4, 0.2 MHz
Roll-off ratio:	root 25% cosine
Frequency range:	5 to 42 MHz (edge-to-edge)
Frequency channel:	voluntary frequency (1Hz step)
Frequency selection:	controlled by CMTS
Output signal level:	(Output signal level of CM is automatically controlled by power ranging function)
Range:	+8 dBmV to +55 dBmV (16QAM) +8 dBmV to +58 dBmV (QPSK)
Step:	1dB
Control:	controlled by CMTS
Frequency stability:	±50 parts per million
Carrier ON/OFF ratio:	> 72dB
Spurious level: (measured in 160kHz)	Inband: -40dBc Adjacent Band: -45dBc 3 or Fewer Carrier-Related Frequency Bands (such as second harmonic, if < 42MHz): -47dBc Bands within 5 to 42 MHz (excluding assigned channel, adjacent channels, and carrier-related channels): -53dBc
(measured in 4MHz)	42 to 54MHz: -40dBc 54 to 88MHz: -30dBmV 88-860MHz: -45dBmV
Protection circuit:	Open/Short, prevents irregular continuous transmission

OSS

- 1) Support SNMP/ICMP protocol
- 2) Support MIBII/MCNS MIB/Toshiba MIB

Interfaces

PC interface:

- IEEE802.3/Ethernet 10BASE-T

Cable interface:

- F type female 75 Ω

Other Specifications

Front indicator (LED):	Power, Cable, PC Link, Data and Test
Power supply:	AC-DC adapter. AC Input; 120V +/-10 percent 60Hz
Power consumption:	8 W
Dimensions(without AC-DC Adapter):	
height:	5.96"
width:	1.96"
depth:	8.07"
Weight:	2 lb.
Safety:	UL1950, UL1310 (AC-DC adapter)
Emissions:	FCC part 15 class B
Environment:	Operating temperature: 32°F (0°C) to 104°F (40°C) Operating humidity: 10% to 90% Non condensing Storage temperature: -4°F (-20°C) to 40°F (60°C)

Requirements for HFC (HFC Environment)

The stable operating is guaranteed under the following HFC Environment:

Upstream

Frequency range:	5MHz - 42MHz
Occupied bandwidth:	Depends on Symbol Rate (0.2, 0.4, 0.8, 1.6, 3.2MHz)
Carrier to noise ratio:	Not less than 25dB
Carrier to ingress power ratio:	Not less than 25dB
Carrier to interference ratio:	Not less than 25dB
Carrier hum modulation:	Not greater than -23dBc
Burst noise:	Not longer than 10usec at a 1kHz average rate
Amplitude ripple:	0.5dB/MHz
Group delay ripple:	200nsec/MHz
Micro-reflections—single echo:	-10dBc@<=0.5usec -20dBc@<=1.0usec -30dBc@>1.0usec
Seasonal and diurnal signal level variation:	Not greater than 8dB min to max

Downstream

Frequency range:	88MHz - 860MHz
Occupied bandwidth:	6MHz
Carrier to noise ratio:	Not less than 35dB
Carrier to interference ratio for total power:	Not less than 35dB
Composite second order distortion:	Not greater than -50dBc
Composite triple beat distortion:	Not greater than -50dBc
Cross-modulation level:	Not greater than -40dBc
Amplitude ripple:	0.5dB/6MHz
Group delay ripple:	75nsec/6MHz
Micro-reflections bound for dominant echo:	-10dBc@<=0.5usec -15dBc@<=1.0usec -20dBc@<=1.5usec -30dBc@>1.5usec
Carrier hum modulation:	Not greater than -26dBc
Burst noise:	Not longer than 25usec at a 10Hz average rate
Seasonal and diurnal signal level variation:	8dB
Signal level slope, 50-750MHz:	16dB
Maximum analog video carrier level at the CM input, inclusive of above signal level variation:	17dBmV
Lowest analog video carrier level at the CM input, inclusive of above signal level variation:	-5dBmV