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Product Catalog

Silicon Solutions

- SDH
- PDH
- Converter

RAYCOM CO.,LTD.

Table of Contents

Section One SDH Solutions

Section Two PDH Solution

Section Three Converter Solutions

SDH Solutions

RC7830 SDH Tributary Units Cross Connector

RC7880 24E1 To STM-1 Monolithic Multiplexer

RC6100F/RC6400F Ethernet Over SDH Mapper

RC7820 SDH Timing Processing and Clock Recovery ASIC

RC7860 155M ADM Multiplexer

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SDH Tributary Units Cross Connector

Overview

RC7830 is designed to achieve cross connections in the SDH. With 16 groups of Sdia, the STM-1 input data bus, 16 groups of STM-1 output data bus Sdo, a single chip has a non-blocking switching capability of TU-12, TU-3 or AU-4 of 16 STM-1 streams. In order to enlarge its switching capability further, RC7830 has designed the extended STM-1 input data bus Sdib that is convenient for the cascade between multiple RC7830 chips. With 4×4 cascade, as many as 48 STM-1 streams can be switched at its maximal switching capability. Each group of STM-1 output data buses in RC7830 can be set to AU-4,TU-12, TU-3 or the mixed type of TU-12 and TU-3. Any tributary entering every stream can be connected to any same size tributary within every outgoing stream. Each channel in RC7830 can be programmed to insert user pattern or AIS, or be set to channel tri-state. RC7830 provides a AIS detecting function on the basis of VC, it is convenient for auto protection switching based on AIS control. RC7830 can be configured, controlled and monitored through microprocessor parallel or serial control bus interfaces.

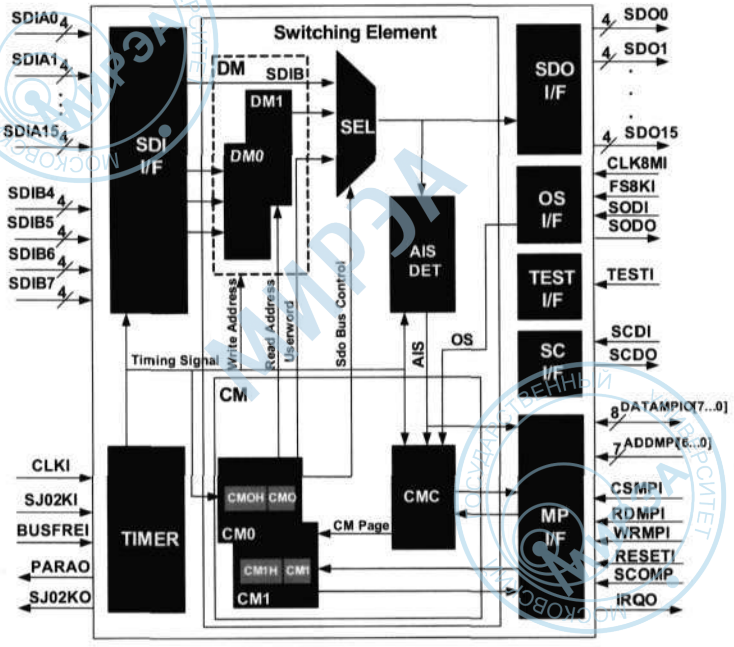
Note: TU-12, TU-3 and AU-4 are switched through configuring registers. In order to switch correctly, all pointers of the Sdia bus must be aligned outside RC7830, RC7830 provides two types of modes of 38.88MHz and 77.76MHz. In the 38.88MHz mode, STM-1 data bus and bus timing are compatible to PMC5362 or RC7860.

Features

- Non-blocking array of switches for cross-connecting SDH TU-12, TU-3 or AU-4
- Provides non-blocking switching between 1008 TU-12 of sixteen STM-1 input streams and 1008 TU-12 of sixteen STM-1 output streams within one chip
- Enlarges the switching capacity to 3024 TU-12 in a 4×4 cascading application
- Allows user patterns insertion on any TU-12, TU-3 or AU-4
- Provides programmable AIS inserting on any TU-12, TU-3 or AU-4
- Allows high impedance output control on any TU-12, TU-3 or AU-4
- Provides automatic AIS detection which is convenient for APS(Automatic Protection Switching)
- Supports either 38.88Mb/s or 77.76Mb/s telecom-bus
- Operates in conjunction with PM5362 which aligns SDH tributary units so that they can be switched by RC7830
- Allows any unused input or output telecom-bus to be masked to lower the power consumption
- Optional BIP-8 detecting of data bus.
- Provides a generic 8-bit Microprocessor Bus Interface (MPI) for configuration, control, and status monitoring
- Efficient interruption management strategy
- Provides an 8.192 MHz Serial Control Bus Interface (SCI), which plays the same role with microprocessor interface and saves nets on PCB
- Provides a 8.192 MHz Serial Overhead Bus Interface (SOI) so that tributary AIS information can be transferred to RC7830
- Low power consumption, CMOS technology, 3.3V power supply
- PQFP240 package

SDH Tributary Units Cross Connector

Block Diagram



Applications

- SDH Broadband Cross-Connects
- SDH ADM/TM Multiplexer
- Multi-service Transport Platform(MSTP)

Typical Application

24E1 To STM-1 Monolithic Multiplexer

Overview

The RC7880 is a monolithic integrated circuit that multiplexes 24 E1s into two STM-1 optical lines. It provides telecom-bus which can be connected to external mapper or EOS chip for more E1s and Ethernet. The RC7880 integrates a Synchronous Equipment Clock module (SEC), an Engineer Ordering Wire processor (EOW), an 8.192Mb/s serial overhead bus, and two overhead extension E1s. Therefore, a single chip can be used to implement the main functions of a low-cost SDH transmission device.

The RC7880 can work in two modes: monolithic multiplexer or E1 mapper. It also provides many characteristic functions including: Automatic Laser Shutdown (ALS), Remote Power Detect (RPD), built-in PRBS Bit Error Rate Tester (BERT), and supports in-band Data Communication Network (DCN) for management.
The RC7880 complies with ITU-T G.707/783/813/704/703 recommendations.

Features

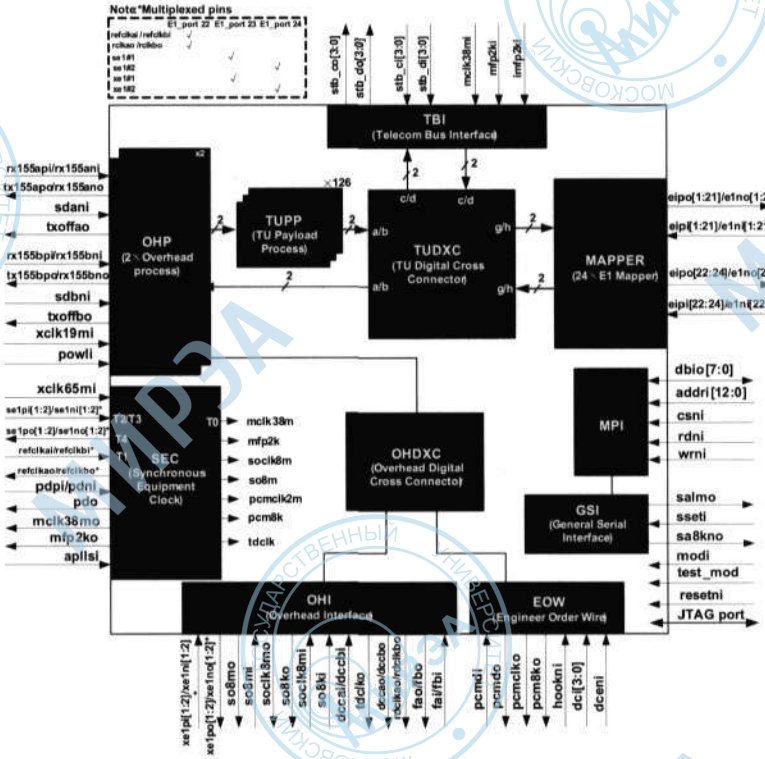
- Two work modes
  - Monolithic multiplexer(SOC)
  - 24 E1s mapper(E1MAP)
- STM-1 optical line process
  - Dual STM-1 lines overhead termination/generation
  - Built-in CDR and LVDS interface
  - AU-4/TU-3/TU-12 pointer interpretation/generation
  - MSOH/RSOH/VC-4 overhead termination/generation
  - OOF, LOF, LOM, MS-AIS, AU-LOP/AIS and TU-LOP/AIS monitoring
  - B1, B2, B3, V5, M1, G1 and VC12-REI monitoring
  - J0(1/16Byte), J1(16Byte) and J2(Byte) overhead bytes
  - termination/generation
  - ALS and RPD functionality
  - Optical diagnostic loopbacks
- E1 interface
  - Up to 24 E1s add/drop
  - Dual telecom-buses and Automatic Protect Switch(APS)
  - TU-12 pointer interpretation/generation
  - V5, J2, N2 and K4 overhead bytes termination/generation
  - Special N2/O multi-frame (similar to 16-byte J1) for E1 port to port management
  - Assignment between an E1 and any TU-12 tributary, and supports interzone service
  - Hardware-based Protection Switching with a switch time less than 50ms
  - Optional HDB3/NRZ code format and built-in CDR
  - HDB3 code violation (CV) detection and latched alarm register(clear on read)
  - Diagnostic line-loop and device-loop (when the loop acts, all 1s are inserted into the opposite data stream)
- Telecom-bus interface
  - Dual nibble-parallel telecom-bus which can be connected to external mapper or EOS chip for more E1s and Ethernet
  - Supports aligned TU-12/TU-3 structure
  - Use C1J1V1 and SPE(sharing pins with the E1 port) to mark VC-4 payload
- Tributary unit pointer process
  - Supports Add/Drop Multiplexer(ADM)
  - TU-12/TU-3 pointer interpretation and APS
  - TU-12/TU-3 line-loop
- Synchronous equipment clock
  - Complies with ITU-T G.783 recommendation
  - Generates 38.88MHz equipment clock(T0) and synchronized 8.192MHz clock for serial overhead bus
  - Free-running, locked and holdover working mode
  - The timing source can come from 4 optical lines(T1), 2 E1 lines(T2), 2 external timing references(T3) and output 2 timing signals(T4), T3 and T4 can be 2MHz or 2Mb/s
  - Digital Phase-Locked Loop with configurable bandwidth (0.05Hz - 20Hz)
  - External VCO component is necessary to generate 155.52MHz clock for optical transmission
  - Supports G.704 frame on T3, SSM termination/generation
- Overhead interface(OHI)
  - One 8.192Mb/s synchronous serial overhead bus
  - Two overhead extension E1s(G.704 frame) for communication

24E1 To STM-1 Monolithic Multiplexer

of E1/E2/F1/D1-D12 and supports in-band Data Communication Network(DCN) for management
- Two HDLC interfaces for Data Communication Channel(DCC) which can be 192kb/s or 576kb/s
- Two RS-232 interface for F1 or F2
- 256x256 64Kb/s non-blocking cross-connection between optical overhead, 8.192Mb/s serial bus, XE1, HDLC and RS-232

- EOW
  - E1/E2 hardware-based EOW system
  - Directly connect with CODEC (such as TP3057) component
  - Site-dial call, up to 99 sites
  - *Built-in hardware-based EOW signalling processor*
  - Generates tone of dial, ring, ringing back, engaged, howling
  - Support DTMF
- Generic serial interface(GSIO)
  - Four custom registers(32-bit) output in series, external serial-in/ parallel-out shift registers(such as 74HC595) are needed to drive LEDs
  - Four custom registers(32-bit) which can come from external parallel-in/serial-out shift registers(such as 74LS165)
- Built-in BERT
  - $2^{15}-1$ PRBS generation/monitor (unframe) or G.704 monitor only
- Microprocessor interface
  - 8-bit Intel compliant interface
  - Write protect register
- Others
  - 0.18um CMOS and low power consumption
  - 1.5V for kernel, 3.3V for I/O
  - LQFP256 package, without lead, 5V tolerance

Block Diagram



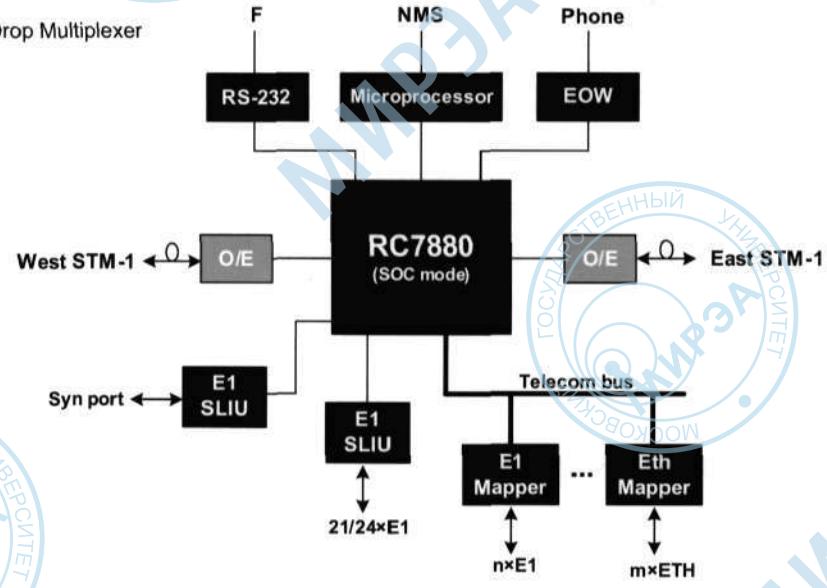
24E1 To STM-1 Monolithic Multiplexer

Applications

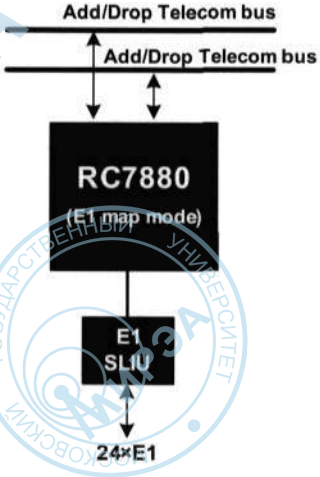
- SDH Add/Drop Multiplexer
- SDH Terminal Multiplexer
- Multi-service Transport Platform (MSTP)
- Customer Premises Equipment (CPE)

Typical Applications

- SDH Add/Drop Multiplexer



- SDH E1 Mapper



Ethernet Over SDH Mapper

Overview

RC6100F（1 VCG）/ RC6400F（4 VCG）implements Ethernet transmission over SDH and complies with related ITU-T standards. It realizes mapping of the Ethernet into SDH with little delay. It also supports GFP-F, LCAS protocols and provides virtual concatenation of 63 VC-12s.

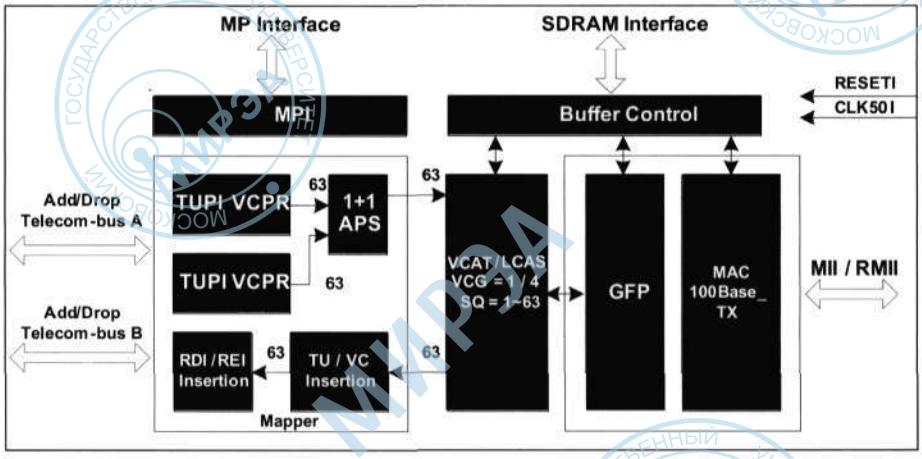
RC6100F/RC6400F can be used in MSTP (MSPP) system, Ethernet terminal or convergence device and can communicate with other standard devices.

Features

- Provides one MII / four RMII interface which can be mapped into 1/4 VC-12-Xv VCG
- Supports two groups of telecom-bus in 38.88M, by which it can communicate with RC7860,RC7830,and provides channel protection as well
- Generation and termination of POH overhead
- Supports 1/4 virtual concatenation group of 1 to 63 VC-12s
- Provides optional Link Capacity Adjustment Scheme (LCAS) protocol, and will realize bandwidth dynamic adjustment with interval of 2.0176Mb/s
- Auto-adaptive mechanism of the receiving LCAS bit and GFP parameters, convenient for the communication with equipment of other manufactures
- Ethernet Interface
  - Provides one MII / four RMII interface with100Mb/s bandwidth
  - PHY working mode, needs external Ethernet Switch chip
  - Flow control function by pause frame
  - Configurable maximal frame-length, and can be up to 2036 bytes
  - Transparent transmission of VLAN Ethernet frame
- Data Package
  - Supports GFP-F of ITU-T G.7041
  - Supports Ethernet frame with Null Extension or Linear Header, present or absent Payload FCS field
  - The receiving module can process GFP management and data Frame that with Null Extension or Linear Header, with FCS or not
  - LOF alarm, error frame statistics
- Concatenation
  - Supports single VC-12 mapping
  - Supports 1-63 VC-12s concatenation with VCAT protocol
  - Supports 1-63 VC-12s virtual concatenation with LCAS protocol, and can realizes the modifying of VC-12 amount without damage
  - Supports delay difference of 112 ms maximally that is programmable
  - Support LCAS channel monitor
- Mapper
  - Add/drop TU-12 signals to and from aligned STM-1 on the 38.88M nibble-parallel Telecom Bus, direct connection with RC7880 and RC7830
  - 126 TU-12, VC-12 adapters for channel monitor and manual, automatic channel protection switching
  - Independent add/drop bus timing modes, VC-12s added with independent REI, RDI, BIP-2 on the two add buses
  - V5 byte Signal Label Mismatch(SLM), Unequipped(UNEQ), BIP-2 errors, Far End Block Errors(REI), Remote Defect Indication(RDI) detection, BIP-2 generation, and RDI REI automatic generation
- SDRAM interface
  - External 4M×16 SDRAM of 64Mbit
  - Clock frequency is 50/100MHz
  - Read and write in burst8 mode and the CL is 3
- Microprocessor interface
  - 8bit Intel non-multiplexing microprocessor interface
- Provides the chip driver with high compatibility and API function
- RC6100F(1 VCG): QFP208 Package
- RC6400F(4 VCG): BGA320 Package

Ethernet Over SDH Mapper

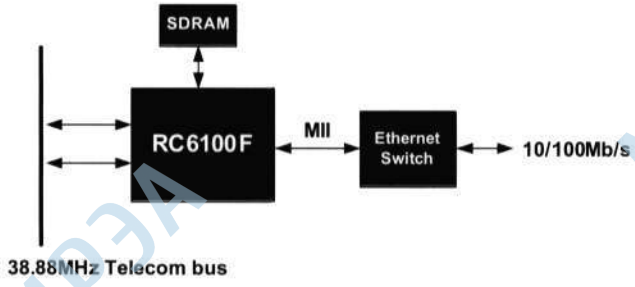
Block Diagram

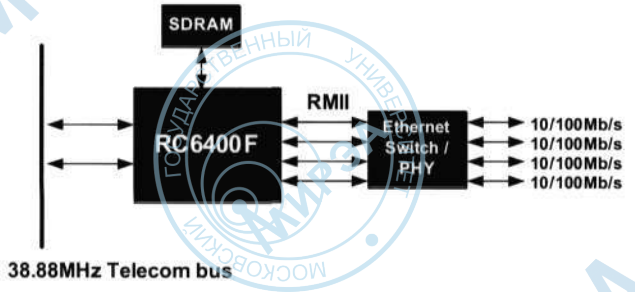


Application

- Multi-service Transport Platform(MSTP)

Typical Applications





SDH Timing Processing and Clock Recovery ASIC

Overview

RC7820 is a highly integrated ASIC solution for SDH timing, synchronization status message processing and independent STM-1 clock recovery – two units.

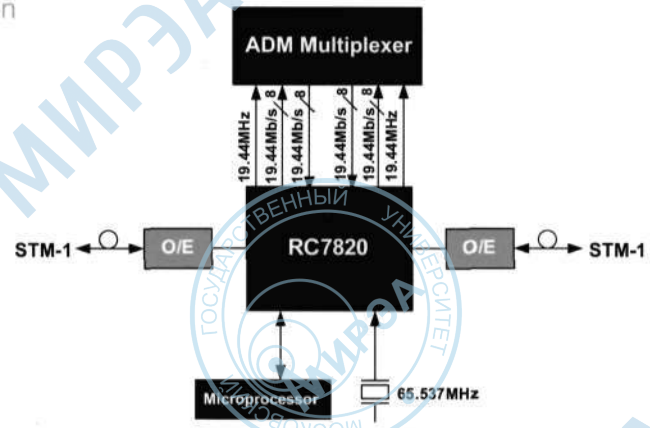
Features

- Monolithic SDH equipment timing source solution
- Complies with the timing accuracy, pull-in, pull-out, noise generation, noise tolerance, transfer characteristic, short term phase transient response, long term phase transient response (holdover) and meets the requirements of ITU-T G.813
- Supports Free-run, Locked and Holdover modes
- Meets ITU-T G.783 standards
  - Accepts eight fully independent line reference clock (T1)
  - Accepts two PDH 2Mb/s reference clocks (T2) with E1 framers supporting SSM function
  - Accepts two 2Mb/s or 2MHz external synchronization signals as reference and supports SSM if 2Mb/s is selected
  - Generates two output clocks (T4) with optional 2MHz or 2Mb/s selection and supports SSM if 2Mb/s is selected
  - Generates 4 outputs clocks (T0) in different frequencies such as 19.44MHz, 38.88MHz, 77.76MHz and 155.52MHz, companion of the 8KHz frame and 2KHz multi-frame synchronous pulses
- Built-in APLL – 155.52MHz clock's output can be used to data transmission directly
- Integrates DPLL with configurable bandwidth raging from 0.05Hz to 20Hz, which can be adjusted based on the different applications of the network element to solve the confliction for the jitter and wander
- Provides microprocessor interfaces for the setup and status monitoring
- Provides complete SSM function which meets the requirement of ITU-T G.781.
- Integrates two independent STM-1 clock recovery units for two links
- Two parallel/serial and serial/parallel data converters are designed to connect with STM-1 framers
- Supports IEEE 1149.1 JTAG edge scanning function
- Single 3.3V operation and 5V I/O compatible
- QFP176 package

Application

- SDH ADM/TM Multiplexer

Typical Application



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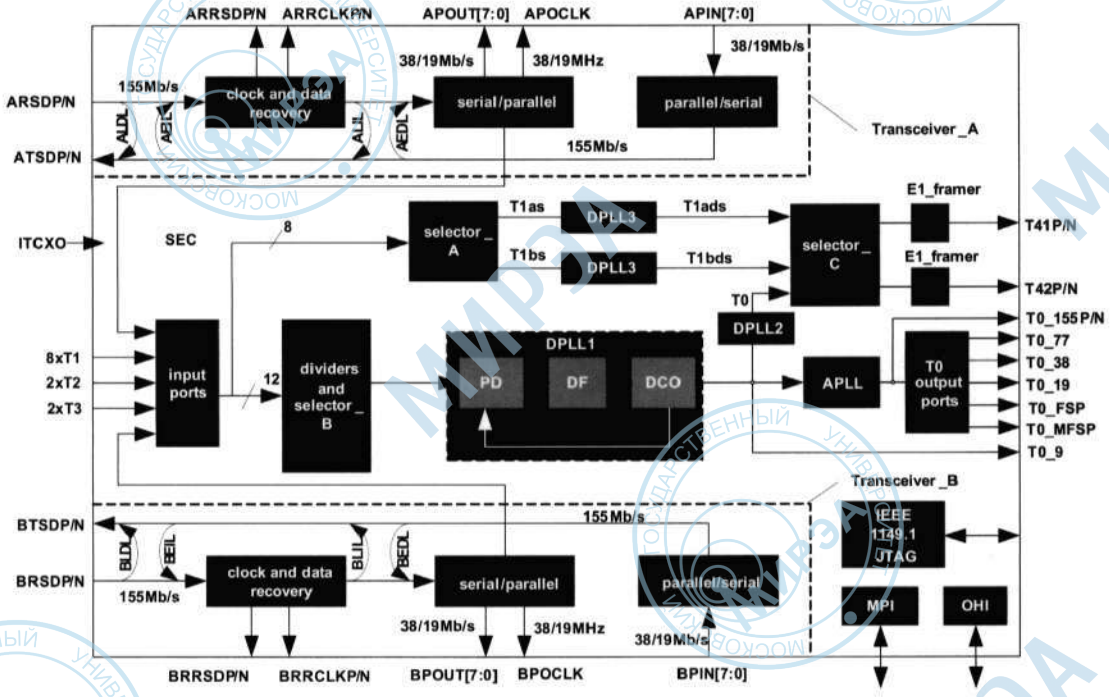


155M ADM Multiplexer

Overview

RC7860 is an add and drop multiplexer of STM-1, realizing a dual-optical-port section and higher-order path overhead processing, lower-order path pointer aligning, and cross-connection function. It can be used in ADM equipment or SDH instrument.

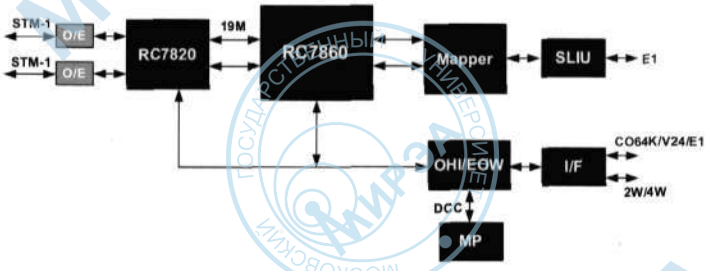
Features

- Realizes a dual-optical-port Section Overhead Terminal (SOT) of STM-1 and Lower-order Path Aligning (LPA), and supports single-chip ADM application
- Processes dual STM-1 frames, RSOH and MSOH, AU-4 pointer, VC-4 overhead
- Realizes payload pointer process of 126 TU-12s or(and) 6 TU-3s at most and monitors AIS, LOP
- Integrates four Telecom-bus ports realizing the switching between the channels of same order and in same structure
- MP control to realize protection switch for inherent monitor
- Supports19.44Mbps parallel line interface, and can connect with Clock and Date Recovery (CDR) or clock generator (CKG)
- Supports 38.88Mb/s telecom-bus interfaces connecting with MAPPER or DXC circuit
- Terminal side provides VC-4/C4 interfaces
- Supporting STM-4 applications with four RC7860 chips and a STM-4 FRAMER
- Provides one 8.192Mbps SO-bus(serial overhead bus) interface supporting E1、E2、F1、S1、DCC access
- Provides line-bus, telecom-bus and SO-bus loop which is convenient for testing
- Processes AIS and RDI of different grade by hardware
- Realizes B2 and B3 calculation and EXC and DEG generation
- Processes single-byte J0 and 16-bytes J1
- Provides filtration K1,K2(b1-b5) and S1 filtration
- Provides LOS, LOF,LOP, LOM, AIS, RDI, EXC, DEG detection with pins output
- Provides counts of B1、B2 、B3、M1、G1，PJE and buffer slip
- Provides a non-multiplexed 8-bit microprocessor bus interface
- Convenient interruption management and control
- Supports the RC7820, RC7830, RC7851F,RC7870, S3037, S3026/3028 models
- Complies with G.707,G.783 of ITU-T recommendations
- 3.3V power supply, LV-TTL interface
- LQFP176 package

Application

- SDH ADM/TM Multiplexer

Typical Application



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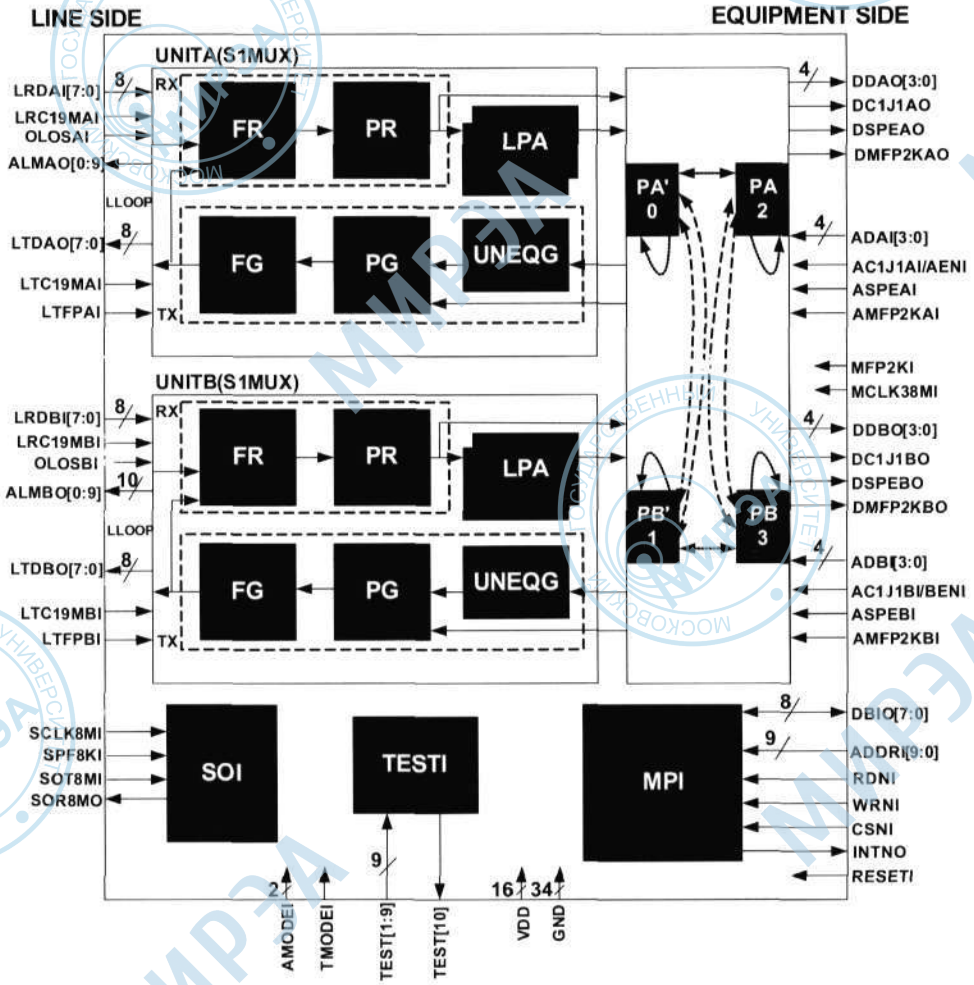


PDH Solution

RC7017 8E1&100M Ethernet Multiplexer

8E1&100M Ethernet Multiplexer

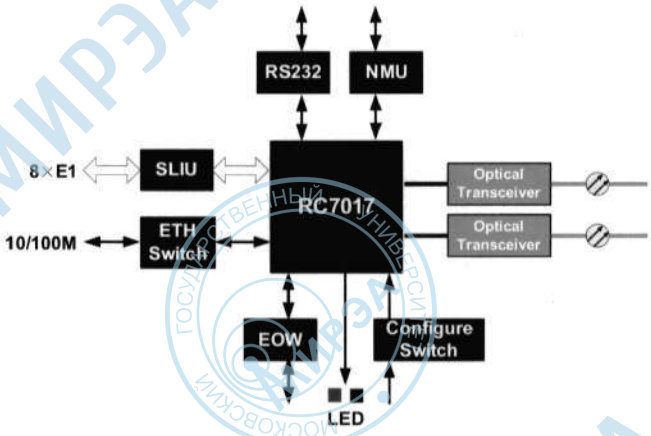
Overview

The RC7017 is a mixed multiplexer, which integrates a PDH optical terminal and a 100BASE-FX Ethernet PHY transceiver. The RC7017 provides two Pseudo-CML (PCML) interfaces that can be directly connected to optical transceivers, an Engineering Order Wire (EOW) interface, customer auxiliary interfaces, and other useful interfaces. With this featured chip, it is easy to realize the optical terminal with multi E1 and a wire speed fast Ethernet.

Features

- Realizes mixed multiplexing of 8E1 signals and an Ethernet with a fully bandwidth of 100M, whose interfaces are comply with international standards
- Provides two PCML interfaces with embedded clock and data recovery module, which can be connected with two optical transceivers to realize compulsive/automatic protection or with one optical transceiver without protection
- ALS(Automatic Laser Shutdown/Automatic Laser Reduction) function is optional
- Embedded Digital Phase-Locked Loop and CDR modules complies with ITU-T recommendations of G.823 and G.742
- Provides order wire interface of 64Kb/s which can connect with CODEC module
- Provides UART interface whose rate can be 9600b/s or 19200b/s to configure and monitor the chip
- Supports single E1 loop-backs of local and remote
- Supports respective and unified configuration of E1 code format
- Support E1 alarm automatic mask when no LIU installed
- Supports respective and unified alarm mask of existent E1 tributaries
- Provides customer auxiliary interfaces which can be configured as the followings: two serial channels of 2.048Mb/s, or four serial channels of 1.024Mb/s, or two serial channels of 1.024Mb/s and on E1 channel with NRZ code
- Provides 32 low-speed asynchronous sampling channels, which can be accessed through management UART
- Provides alarm detection including Loss Of Signal (LOS) , Loss Of Frame (LOF), 10-3 error,10-6 error of optical line and LOS, code violation of E1 interfaces, etc, and indication signal involving the state of EOW and optical interfaces
- LQFP144 package and 3.3 Voltage power supply

Application



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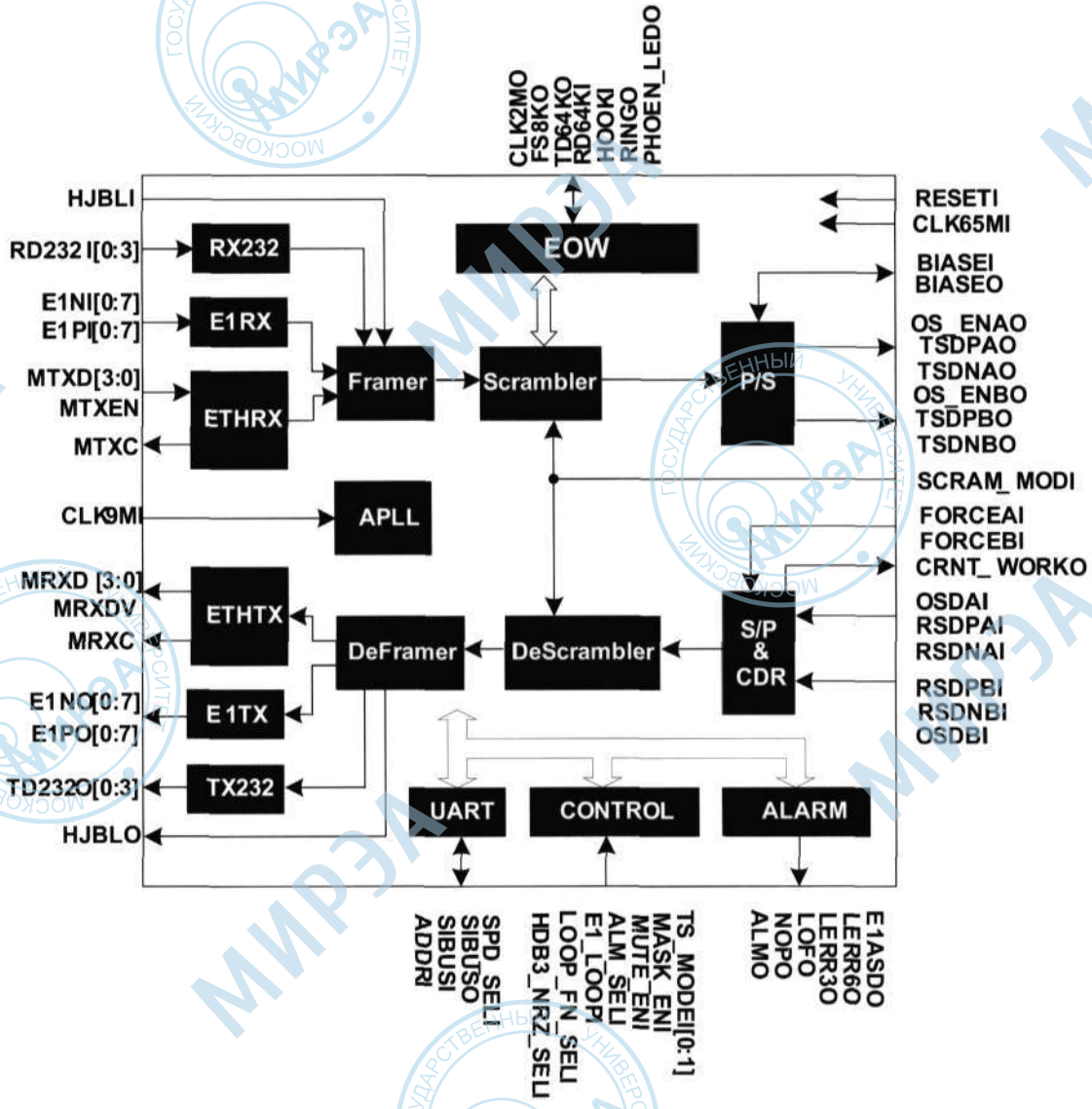


Converter Solutions

RC6116	Ethernet Over PDH Converter
RC7235A	Multi-service Converter
RC7222	Multi-service Ethernet Converter
RC7210	Ethernet to 4E1 Converter

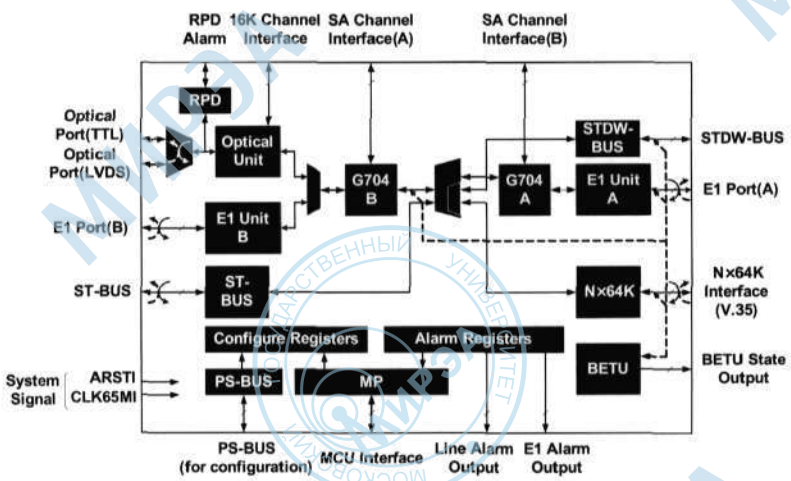
Overview

The RC7235A is the updated revision of the RC7235, and can be used in E1 fiber modem, V.35 fiber modem, V.35 to E1 converter and N×64Kb/s to ST-BUS Multiplexer applications. The RC7235A provides optical, E1 and ST-BUS interfaces on the line side. On the service side, the RC7235A provides V.35, Fractonal E1 and STDW-BUS which can used for data and voice access. It also provides an MP interface and PS-BUS for configuration and built-in BER testing, enhancing the capability of network management. The RC7235A is characterized by tiny size and very low power consumption and is very suitable to use for development a multi-purpose desktop terminal.

Features

- Integrates optical and E1/ Fractional E1 interfaces on line side, N×64Kb/s, and STDW-BUS[note1] and ST-BUS on user side. The selected interfaces are validated by setting the device mode
- Optical bit rate is 4.096 Mb/s, LVDS, or LVTTL interface selectable, with built-in CDR, RPD[note2] functions
- Integrates dual E1 framer/de-framers (E1A and E1B), complying with ITU-T G.703, G.704, and G.823. E1A is for user side and E1B for line side
- Un-framed E1 or framed E1 can be selected. For framed E1, CRC-4 can be set to adaptive or manual
- Supports both PCM30 and PCM31, with signaling process on TS16
- Supports STDW-BUS for all N×64 Kb/s based data and voice signaling multiplexing to framer E1B together with the dedicated N×64 Kb/s interface
- Provides ST-BUS for multiplexing N×64 Kb/s and E1A interfaces
- The used time slots of N×64 Kb/s can be configured successively or arbitrarily
- Supports DCE or DTE on the V.35 interface
- Receiving clock is auto aligned to input data and the output data delay can be configured by registers on the V.35 interface
- Various timing modes including: free oscillation, tracing optics line, E1/FRACTIONAL E1, V.35 interface, and bidirectional asynchronous timing
- Built-in PLL prevents necessity of external VCO when tracing V.35 interface

Block Diagram



Section 3

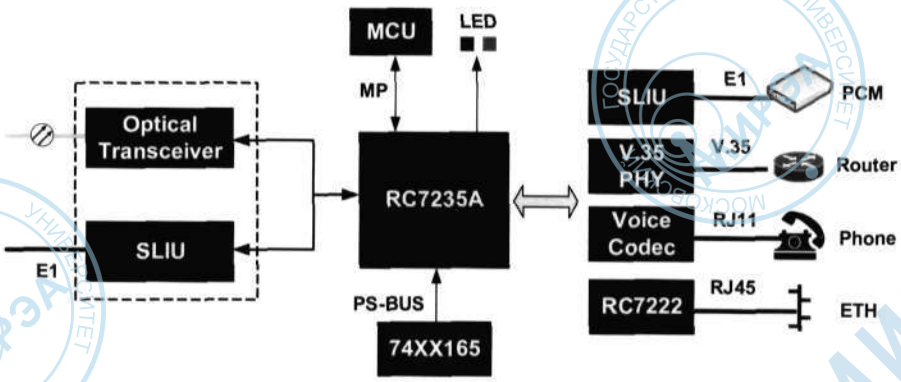
- MP and PS-BUS[note3] for configuration and supervision
- Built-in BETU[note4] for performing line testing and diagnosis
- With SA bits in TS0, monitors all I/Fs status of both local and remote terminals, implements configuration, loop back, and channel diagnostic function
- TQ100 package, 3.3V power supply, 5V/3.3V I/O tolerable

Note:

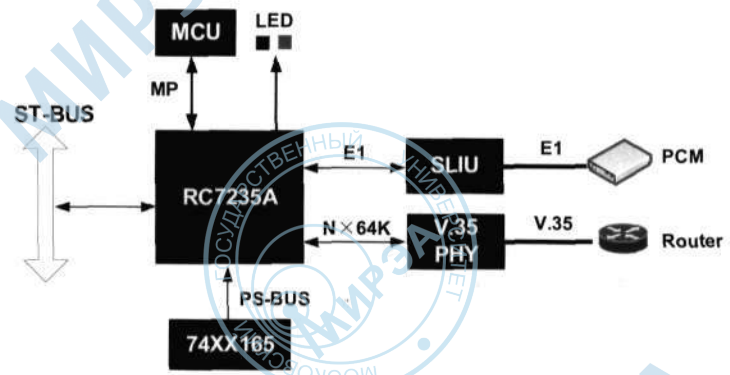
Note1 STDW-BUS: A 2.048 Mb/s bus similar to the ST-BUS, but two wires are added for signaling access.
Note 2 RPD: Remote power down detection. RPD is used to distinguish the failures of remote power down or fiber break.
Note 3 PS-BUS: Parallel to serial bus for chip configuration.
Note 4 BETU: Built-in error testing unit.

Applications

- Multi-service Fiber- Modem/Converter



- Multi-service ST-BUS Converter



Overview

The RC7222 is a highly integrated ASIC via which Ethernet frames and ST_BUS signals can be transferred through the Wide Access Network (WAN). On the other hand, it supports several WAN options such as E1/FE1 interface, optical interface and HDLC interface.

The RC7222 delineates the variable-length payloads from Ethernet frames, encapsulates them in the format of HDLC, and then maps them into the E1/FE1 frames. It can communicate with other Ethernet bridge chips adopting similar HDLC encapsulation mechanism.

Some other constant-bit-rate services, such as traditional voice service, can be converted into ST_BUS signals, multiplexed into E1/FE1 slots via the ST_BUS interface, and transferred to the other side.

The RC7222 integrates excellent statistic functions that can monitor work status and performance information of Ethernet, HDLC and WAN interfaces; furthermore, it provides both UART and I2C interfaces, enhancing the management capability and accessing convenience.

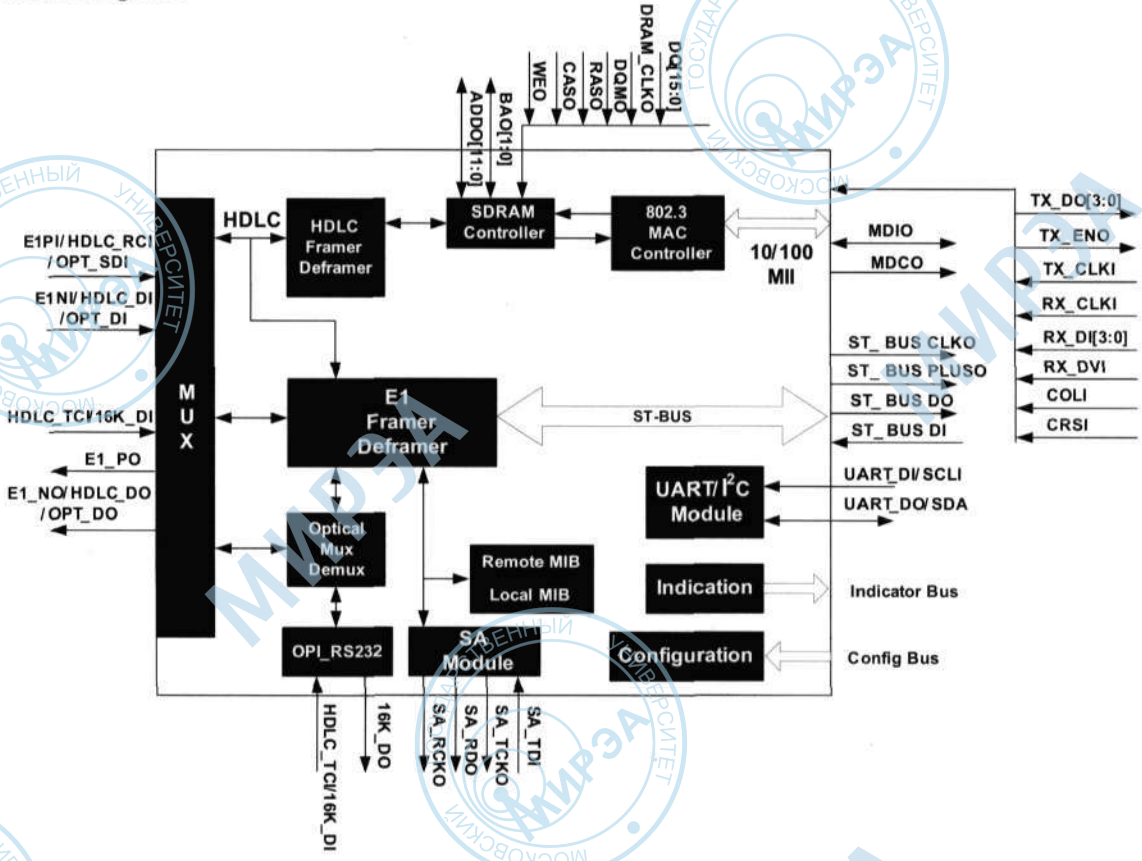
Features

- Ethernet bridge chip with multiple WAN interface options: framed E1 (FE1 for short), unframed E1, optical line interface and HDLC interface
- Multiplexing ST_BUS signals into E1/FE1 or optical channels
- Ethernet interface
  - Standard Media Independent Interface (MII) and MDIO management interface for connection to Ethernet PHY
  - 10M/100Mbps, full/half duplex supported, comply with IEEE 802.3
  - 32-address LAN table, with automatic learning and aging
  - Forwarding only the frames destined for WAN, otherwise filtering
  - Frames with length from 64 to 2024 bytes transparently transferred
  - Illegal frames such as bad CRC packets, undersized packets (less than 64 bytes) or oversized packets (more than 2024 bytes) discarded
  - PAUSE flow control ability in full duplex mode
  - Exhaustive statistic information for Service Level Agree-ment (SLA)
- ST_BUS interface
  - Interface for signals to be multiplexed into E1 slots, such as voice services
  - Slots not assigned to Ethernet are available for ST_BUS services
- E1/FE1 interface
  - Carrier for Ethernet frames and ST_BUS service signals
  - Complying with ITU-T recommendations: G.703, G.704, G.706 and G.732
  - Optional line code: HDB3 or NRZ
  - Timing source may select local oscillator or the clock recovered form the line, more flexible for different applications
  - PCM30/31 mode selectable, CRC-4 check function auto adaptive
  - Detailed status and alarm information for statistic record generating
  - User-activated local and remote loop-back functions, helpful for link diagnosis
  - A transparent sync 20Kbps data path provided via spare bits (SA) in FE1 mode
- Optical interface
  - 4.096Mbps channel for an E1 data path (carrying Ethernet and ST_BUS signals) and a transparent asynchro nous 16Kbps user-defined data path
  - Built-in Clock Data Recovery (CDR) unit
  - Direct connection to optical transceivers of TTL voltage level
- HDLC interface
  - Maximum bandwidth: 50Mbps
  - Frame format compatible with some Ethernet bridge chips from other vendors
- SDRAM interface
  - Built-in SDRAM controller, seamless interface to external 64Mbit SDRAM
  - Integrated SDRAM tester for board debugging
  - Data buffer resizable, from 32 frames to 512 frames

Multi-service Ethernet Converter

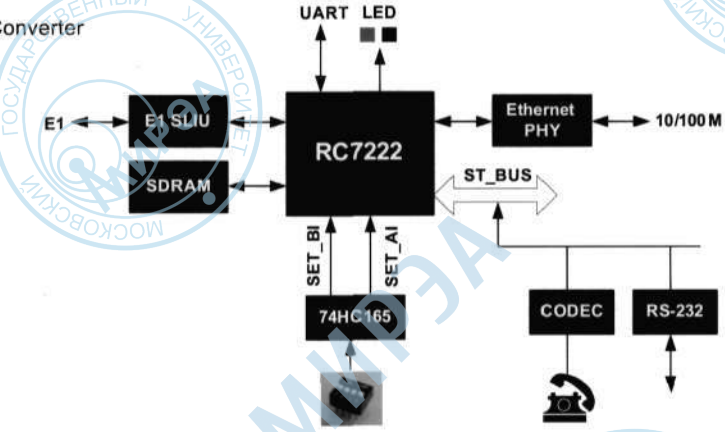
- Management interface
  - 19.2Kbps UART interface and 100Kbps I2C interface avai-lable for access
  - 8-bit configurable address, for up to 256 bridge pairs to be managed
  - Local RC7222 and Ethernet PHY can be monitored and configured
  - Status of the remote RC7222 and PHY can be retrieved in FE1 mode
  - Extra low-speed data path provided for users, extending management capability
  - Chip reset can be activated by the management console as well as the reset pin
- Proprietary technique (patent pending) adopted to prevent Ethernet frames from looping back in case of unexpected E1 loop-back
- Ethernet data can be allocated to any slot of E1 frame, and the slot occupation on either side can be coupled accordingly
- 0.25um CMOS technology
- Voltages: Core 2.5V; I/O 3.3V
- LQFP128 package

Block Diagram

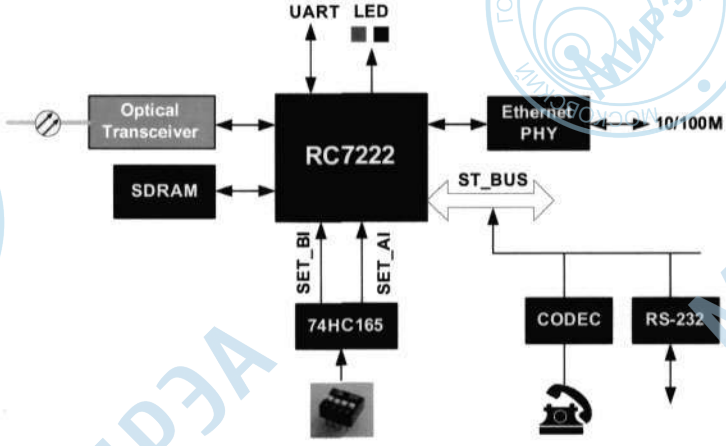


Applications

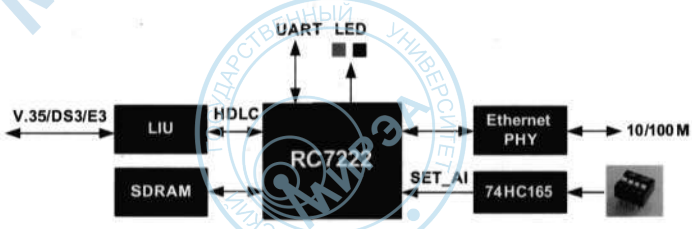
- Ethernet to E1 Converter



- Ethernet to Optical Converter



- Ethernet to HDLC Converter



Ethernet to 4E1 Converter

Overview

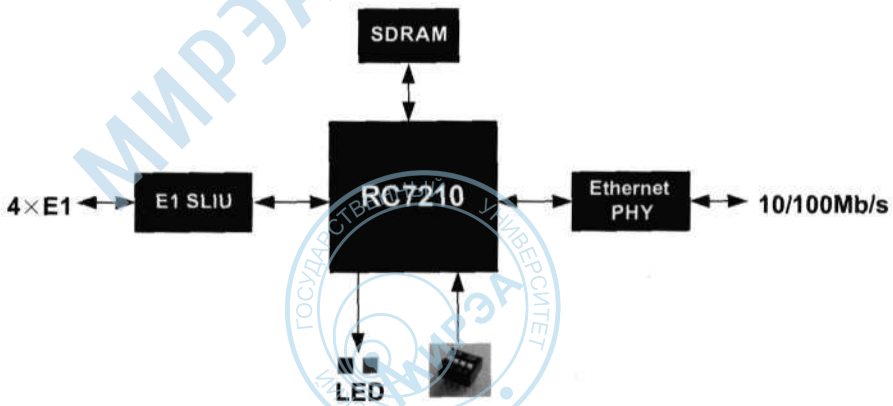
RC7210 is composed of the following modules: Ethernet MAC Controller, E1Rx Control module, E1Tx Control module, TX Queue Management, Require Management, TX Queue Interface (SDRAM controller), Rx Queue (internal RAM), System Control module, Control and Alarm interface, Clock Generation module and four FIFOs integrated for speed compensation.

To achieve a broadband Ethernet remote bridge, two coequal RC7210 systems are to be connected via 1~4 point-to-point E1 links. In local system, RC7210 receives Ethernet MAC data, converts them into E1 frames and forwards the E1 serial stream to the other station through E1 links; in far-end system, RC7210 receives E1 frames, recovers the original Ethernet data and hands them to the LAN it connects via the MII interface. Owing to the privacy of frame procedure and handshaking protocol, RC7210 must be used in pairs.

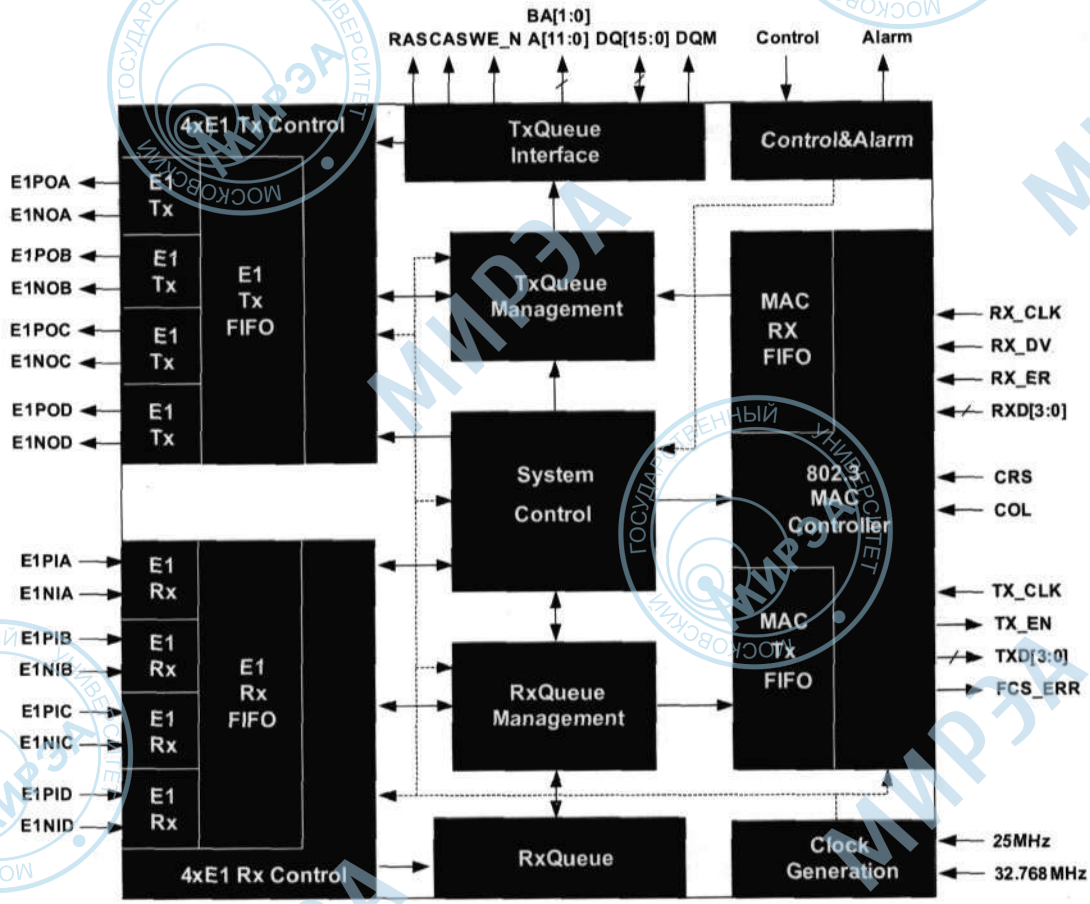
Features

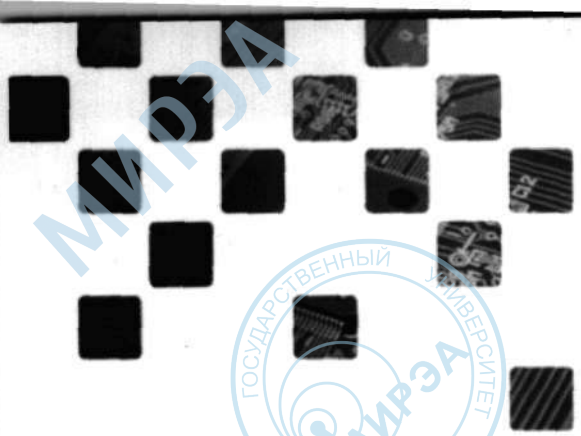
- Broadband Ethernet remote bridge via 1~4 E1 links
- 10M/100M, full/half-duplex MII interface, complying with IEEE 802.3
- Maximum frame length of 1536 bytes, tolerance of the padded-frame in IEEE 802.1Q
- 1024-address LAN table, updated automatically
- Ethernet frame FCS check module integrated, with alarm output
- Quad E1 interfaces, ITU-T G.703, G.704 and G.823 compatible, with signaling slot occupied
- 2.048MHz clock recovery circuitry and HDB3 Codec circuitry inside
- Auto detection of the availability of E1 links and using accordingly
- Capability of resetting remote system
- Loop back capability of E1 circuits
- Built-in SDRAM controller, glue-less interface to external 64Mbit SDRAM
- Selectable buffer size, for different applications
- 3.3 Volt power supply, 5V TTL tolerance on E1 Interfaces
- QFP144 package

Application



Block Diagram





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