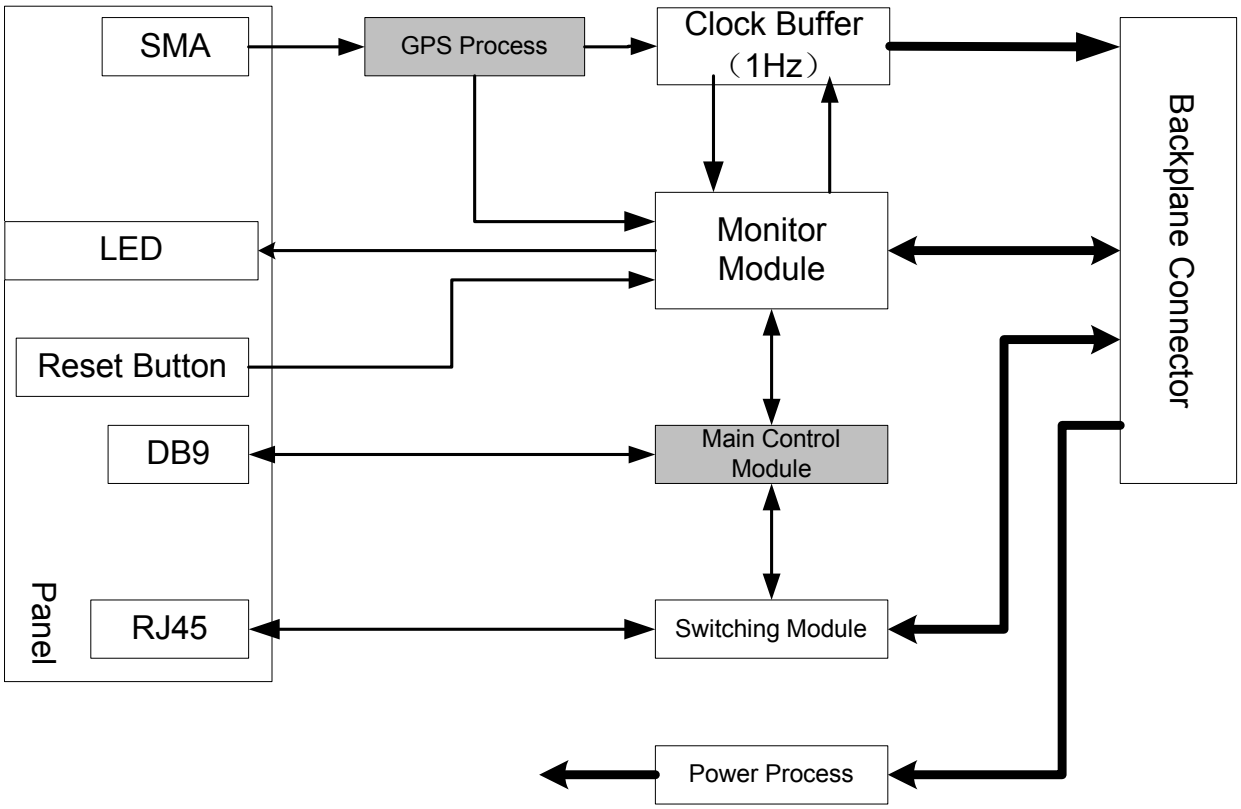
1. Block Diagram



The BSCU has the following functions:

- Clock synchronization

  The GPS module gets the time information from the received GPS signal from SMA board, and then transmits it to each CHU via the clock buffering module and interconnection board interfaces.

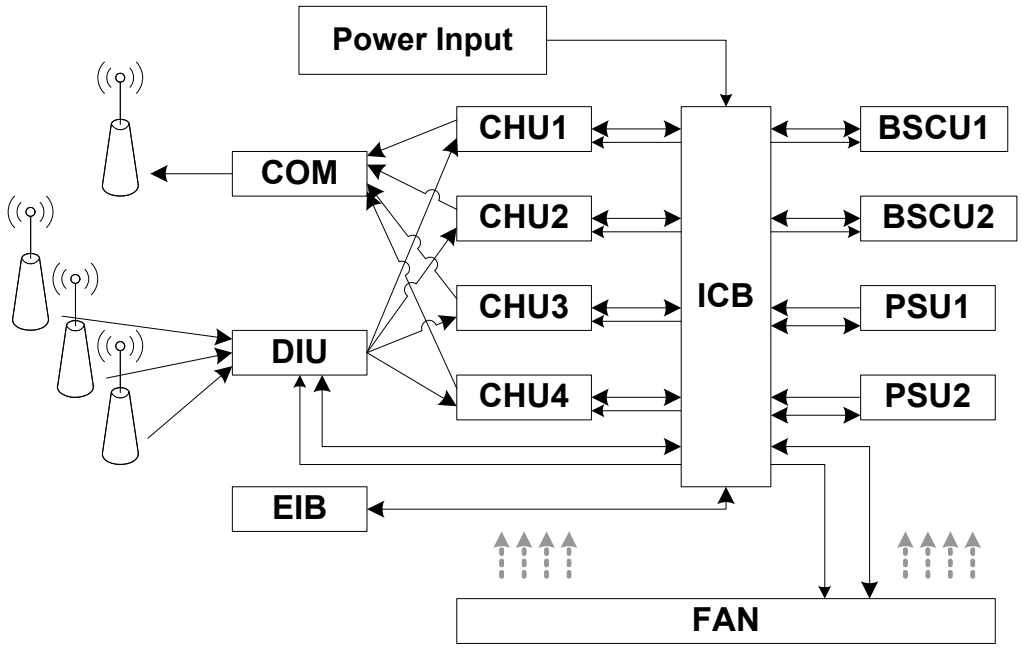
- Monitor

  The network management agent software in the main control module collects the monitoring information from the BSCU and other modules through the monitoring module and interconnect board interfaces, and then reports them to the higher network management agent through the switching module and interconnect board interfaces.

- Protocols process

  The protocol process software in the main control module interconnects with the CHU and EIB through the switching module and interconnect board interfaces.It can receive the uplink signaling

Block Diagram



The base station has the following functions:

- Signaling and service process
  - Downlink signaling and service

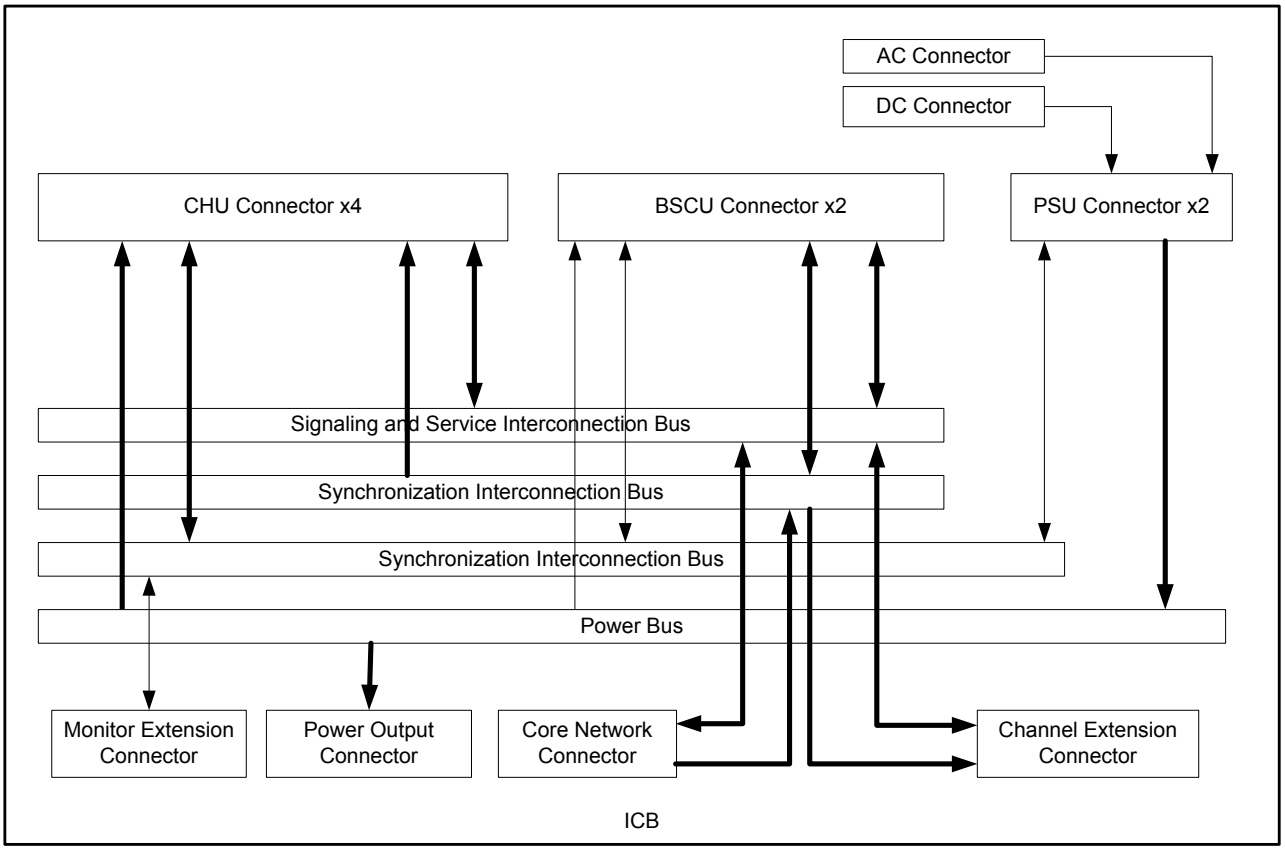
    The data packet from the core network enters the system via the EIB, and then is transferred to the BSCU through the ICB, afterwards, it is sent to the CHU for generating the RF signal via the ICB; finally the signal is transmitted by the TX antenna after combing by the COM.
  - Uplink signaling and service

    The RF signal passes through the DIU to enter the system via RX or diversity antenna, and then is processed by the CHU. Afterwards, the processed signaling or service is transferred to the BSCU via the ICB. Finally the BSCU processes the received data and send it to the core network via the ICB and EIB.
- Monitor

  The BSCU collects all monitoring data from the CHU, PSU, DIU, EIB and FAN by the ICB, and report them to the higher network management agent by the ICB and EIB. In addition, it can receive the command from the higher network management agent by the ICB and EIB, and carry it out by the ICB.
- Power supply

The utility power or DC power (-48V) is sent to the system by the power input terminal, and then to the PSU by the ICB. Afterwards, it converts into internal power source for the system after processing by the PSU. Finally it supplies power to the CHU, BSCU, DIU and FAN by the ICB.

1. Block Diagram



The ICB has the following functions:

- Interconnection between signaling and service

  The signaling and service interconnection bus is used to connect the BSCU to the CHU, and also connected to the EIB for exchanging information with the core network.

- Monitor interconnection

  It can connect the monitoring data from the CHU, PSU, FAN and DIU to the BSCU through the monitoring bus and monitor extension connector, and report to the network management center through the core network.

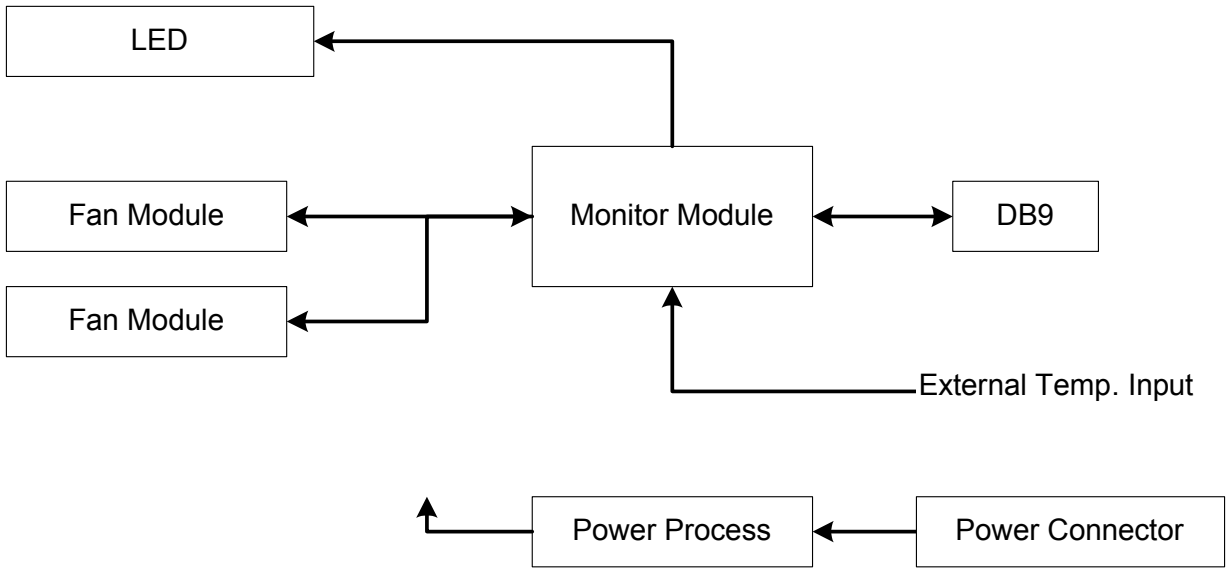
- Synchronization interconnection

  It can allocate the synchronization information output from the BSCU to the CHU through the synchronization interconnection bus and channel extension connector, and send the external synchronization information from the core network connector to the BSCU

- Power Supply

  The DC power from the PSU is allocated to each CHU and BSCU by the power bus, and to the DIU and FAN by the power output connector. The AC power connector is used to send the utility power to the system and to the PSU by the PSU connector.

1. Block Diagram



The FAN has the following functions:

- Monitor the operating status of the FAN

  It can report the temperature and fan speed via the DB9 interface, and receive the command from the higher network management agent to adjust the FAN parameters.

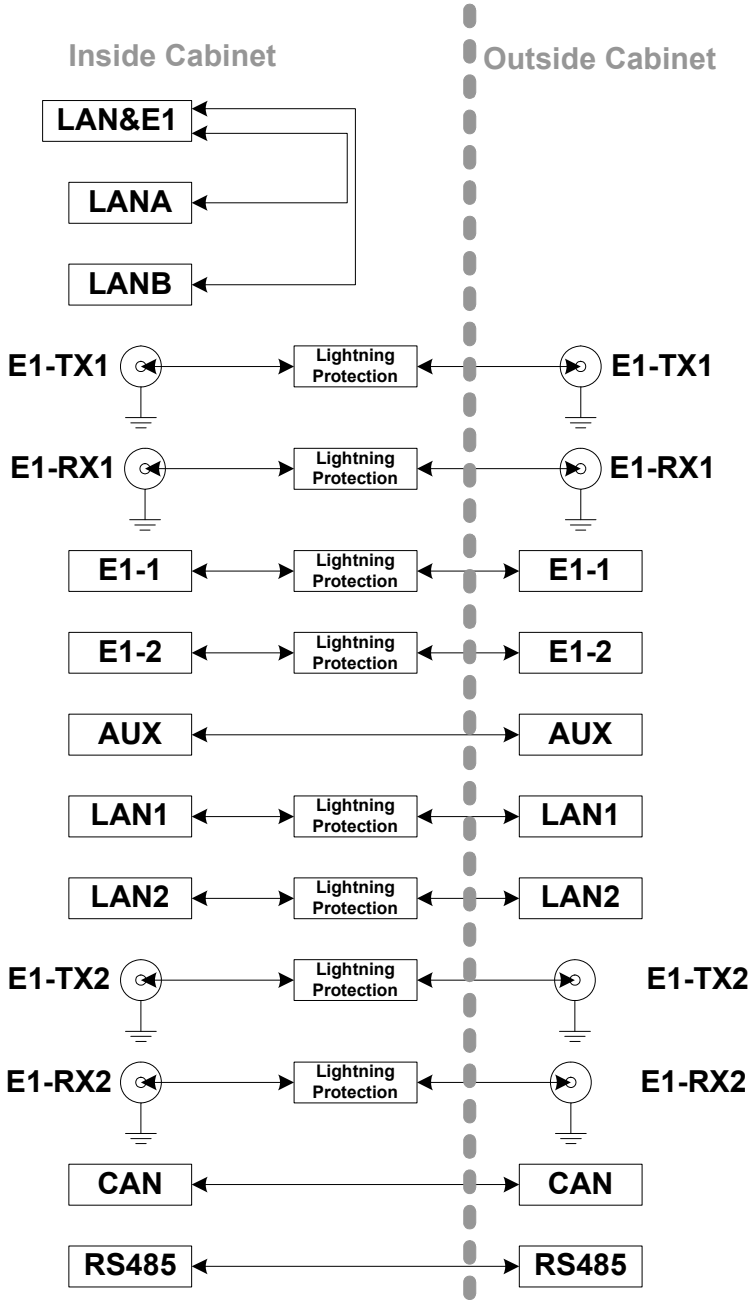
- Heat dissipation

  It can drive the fan module in real time according to external temperature, current speed, network management configuration and etc.

- Power process

  The power supply module can convert the single DC power into the desired DC power for each circuit.

1. Block Diagram



The EIB has the following functions:

- Interconnection between service data and signaling
  - Interconnecting with the internet

    The signaling and service data sent by the base station to the core network first go through from the BSCU to the EIB via the LAN&E1 interface, and then to the router in the base station via the

LANA or LANB interface in the inner side of the cabinet; afterwards they enters the LAN1 or LAN2, and lightning protection interface in the inner side of the cabinet; finally they are fed to the core network through LAN1 or LAN2 in the outer side of the cabinet. The signaling and service data sent by the core network to the base station first enter the cabinet via the LAN1 or LAN2 in the outer side of the cabinet, and then go through the lightning protector to the router via the LAN1 or LAN2 in the inner side of the cabinet, finally they are fed to the BSCU via the LANA or LANB, and LAN& EI interface.

- Interconnecting with EI

  The signaling and data service sent by the base station to the core network first go through from the BSCU to the EIB via LAN&EI interface, and then to the EI network bridge within the base station via the LANA or LANB interface; afterwards they pass through the E1-TX1 or E1-TX2 (E1-1 or E1-2) and lightning protector in the inner side of the cabinet; finally they are fed to the core network via E1-TX1 or E1-TX2 (E1-1 or E1-2) interface in the outer side of the cabinet. The signaling and service data sent by the core network to the base station first enter the cabinet via E1-RX1or E1-RX2 (E1-1 or E1-2), and then pass through the lightning protector to the network bridge via the E1-RX1 or E1-RX2 (E1-1 or E1-2) in the inner side of the cabinet; finally they are fed to the BSCU via LANA or LANB and LAN&E1 interface.

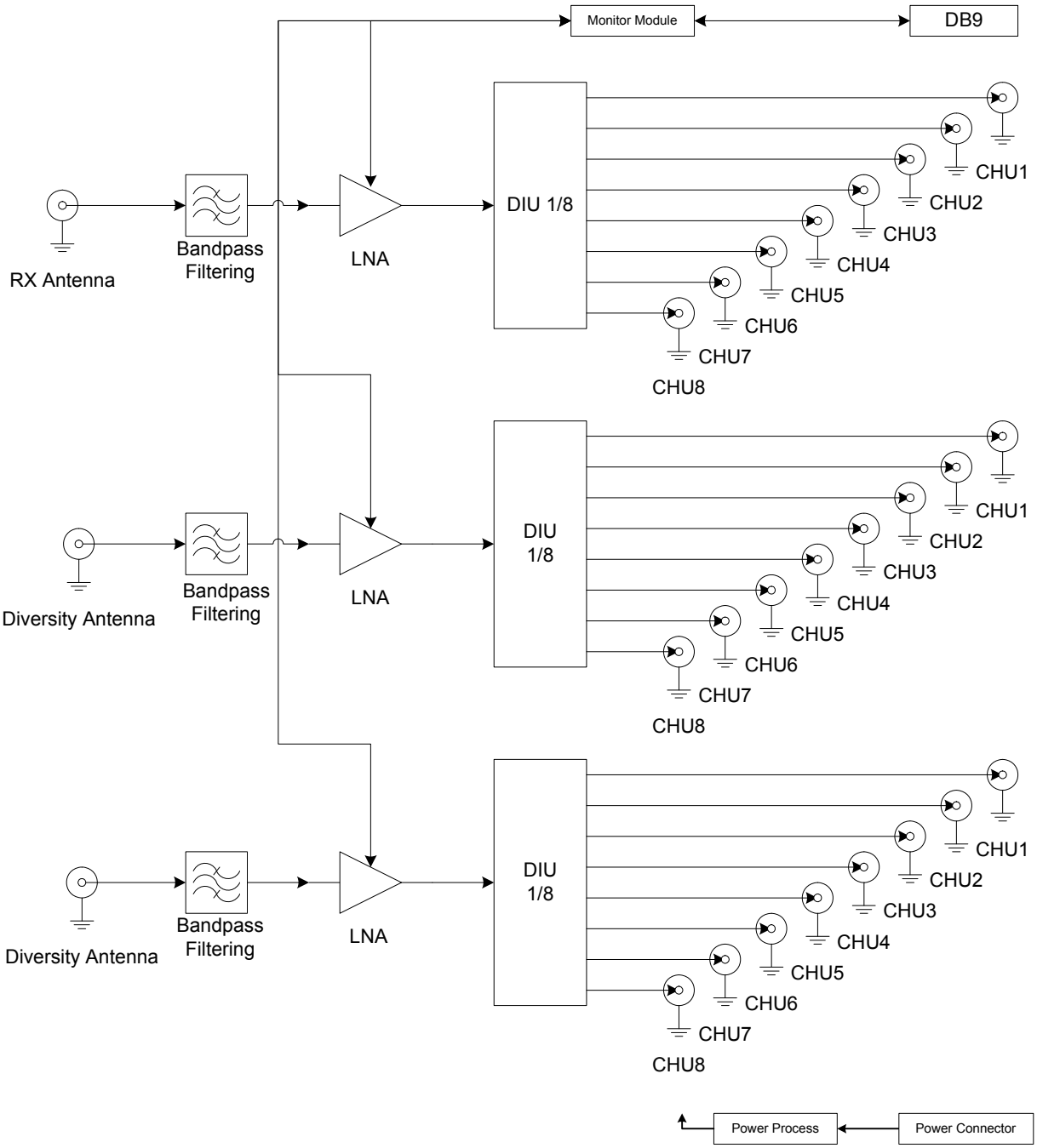
- Interconnecting with the extended channel

  The BSCU sends the extended signal to the EIB through the AUX interface in the inner side of the cabinet, and then to the extended cabinet via the AUX interface in the outer side of the cabinet.

- Monitor

  The network interconnection path of the base station is consistent with that of the signaling and service. The CAN and RS485 interface in the inner/outer side of the cabinet is used for monitoring, achieving monitoring information interaction among the main cabinets and the extended cabinets.

1. Block Diagram



The DIU has the following functions:

- Signal process

The RX signal from the RX antenna and diversity antenna is send to the baseband filter for filtering, and then to the LAN; afterwards it is fed to the DIU to divide one-path signal into eight-path; finally it is transferred to eight CHU via the CHU connector.

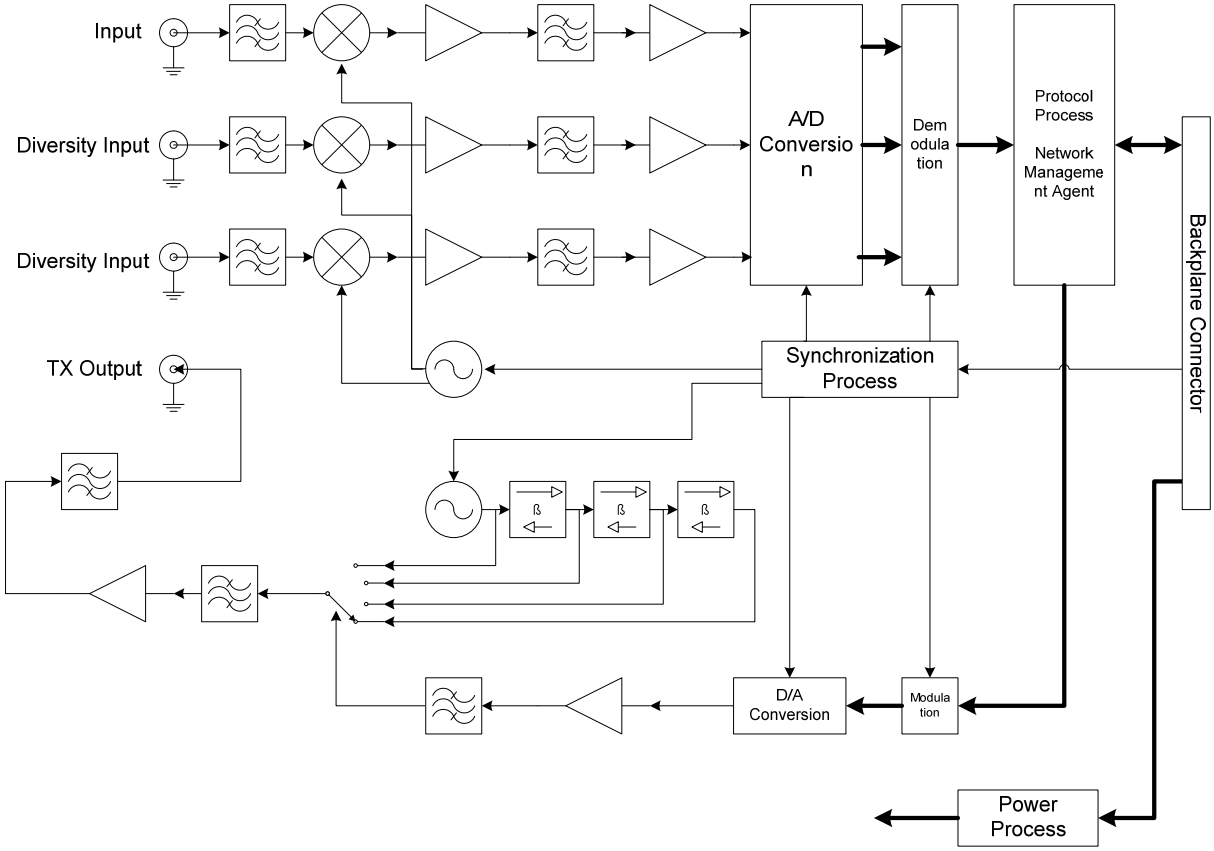
- Monitor

  The monitor module gets the parameter related with LAN according to the received command from the higher network management agent via the DB9 connector, and then adjusts the gain of the amplifier. In addition, it reports the parameter related with LAN to the higher network management agent via the DB9 connector.

- Power process

  The power supply module can convert the single DC power into the desired DC power for each circuit.

1. Block Diagram



The CHU has the following functions:

- Transmitter Circuit

  The air interface signaling (generated by the protocol module) to be transmitted is first converted into the digital baseband data via the modulation module; then into the analog baseband data via the D/A conversion module. Afterwards it is transferred to FSK for modulation after amplification and filtering. Finally it is transmitted after filtering and amplification again.

- Receiver Circuit

  The signal is fed to the CHU via the RX or diversity input. First it is converted into IF signal after amplification, filtering and mixing; then it is converted into the digital IF data via the A/D conversion module after amplification and filtering again; afterwards it is converted into the baseband data via the demodulation module; finally the protocol process module gets the air interface signaling.

- Monitor

The network management agent module collects the monitoring data from each circuit and reports them to the higher network management agent, while it processes the command from the higher network management agent and carries it out on the corresponding circuit.

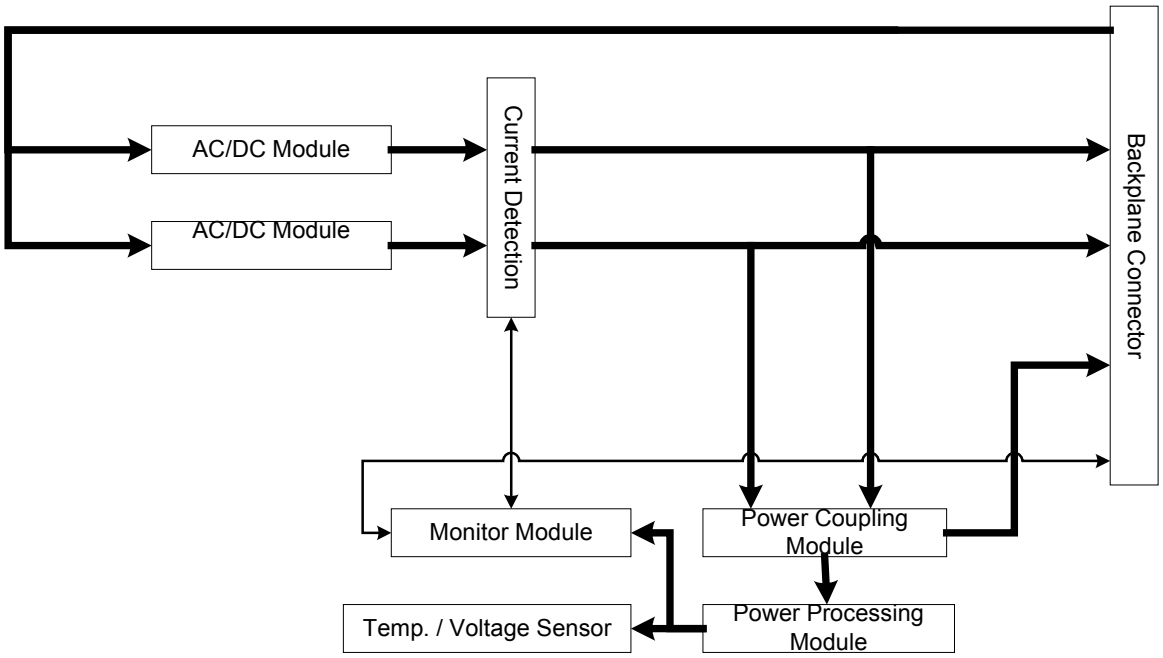
- Synchronization process

  The synchronization process circuit can calibrate the local clock according to the synchronization information, and allocate the calibrated clock drive to each target circuit.

- Power process

  The power supply module can convert the single DC power into the desired DC power for each circuit.

1. Block Diagram



The PSU has the following functions:

- Power Supply

  The utility power from the backplane connector is converted into the desired DC power by the AC module, and then passes thought the current detection module and / or power coupling module to the backplane connector, in order to supply power to each module in the base station and circuits in the PSU.

- Monitor

  The monitor module can gather the current data provided by the current detection module, temperature information provided by the temperature / voltage sensor and the voltage data, and then report them to the higher network management agent through the backplane connector. In addition, it can receive and execute the command from the higher network management agent via the backplane connector.

from the CHU and transfer it to the EIB after processing, and receive the downlink signaling from the EIB and transfer it to the CHU after processing.

- Power process

  The power supply module can convert the single DC power into the desired DC power for each circuit.