TECHNICAL SPECIFICATION SHEET

PROTEUS 2

Proteus II – APPLICATIONS PROGRAMMING INTERFACE

The Applications Programming Interface (API) is a unique feature of all of Chiron's Proteus Processors. In base configuration, all Proteus Processors can be installed and operate without modification. For example as a modem replacement, or an NTU+2ab, the Proteus can be installed using the reference design without software modification. However, in many cases the Systems Integrator will need to add features or modify peripheral activities.

Chiron's API offers the Systems Designer a unique opportunity to modify the ISDN application to meet his specific needs. The API operates as a sub program running on the Proteus processor and as these modules are written in 'C', these can be quite quickly created to offer a tailor made system to meet the designers needs. In addition the designer does not need to know about or modify the base ISDN stacks.

On loading the Proteus II processor looks for API routines held in external memory, if these are not present, then the Proteus will operate in standards mode. If An API program is identified then this will be run.

The API function is extremely powerful and offers a number of facilities, including:-

- **Modification of 'B' channel data** - This can be used for encrypting voice or data streams, introducing new data protocols etc.
- **Modification of 'D' channel Data** – The designer can modify dialled digits, or route information such as CLI or CPI to the data port. This can also be useful in designing charging information.
- **Modification of I/O pins** – All of the I/O pins can be modified via the API. This can be used to interface with contact pins for an alarm panel or in building an ISDN telephone where Keyboard scanners or LCD's can be incorporated within the system.

By using the API a complete system can be built without external processors. The main advantages of the Proteus API include:

1) External processors can be eliminated, reducing overall system costs
2) Reduced Development costs
3) Up to 10 Mips available for API programmes (*dependent on which other Proteus modules also running)*
4) API Ideal for
    - ✓ ISDN telephones
    - ✓ Alarm Panels
    - ✓ Encryption Units
    - ✓ Payphones
    - ✓ Telemetry Systems

CHIRON
Chiron Technology Ltd
Wyvols Court
Swallowfield, Reading
Berkshire RG7 1WY
Tel +44 (0)118 988 0228
Fax +44 (0)118 988 1055
E-mail sales@chiron.uk.com
Web www.chiron.uk.com

The Proteus API provides the user with the following facilities:

- Up to 4 user programmed tasks that are run under the Proteus scheduler.
- Program address space is allocated for user program object code. The user program is run in PROM external to the Proteus chip.
- User memory (RAM) within the Proteus core.
- Non-volatile memory within the Proteus core.
- An 1/0 space for user 1/0 hardware. The user provides external address decoding as required.
- 1/0 facilities are provided within the Proteus core, depending on the configuration used, e.g. UART with macro 1/0 and DTMF tone generator.
- The user program has access to utilities in the core Proteus system:-
    1. Memory manager. Blocks of memory of up to I K bytes can be allocated from and release to the Proteus 128K byte memory pool.
    2. Mail manager. An incoming mailbox is allocated for each user task. The user tasks can exchange mail with each other and with tasks in the core Proteus system.
    3. Timers. 16 user timers are provided. The user can start and stop each timer and control the timeout period. On expiry each timer causes a unique message to be sent to a user defined task.

- Two hardware pins are assigned for interrupts generated by user I/O hardware. Each has a separate vector into the user program area.

- Telephone-like call control interface into the Proteus core for voice call control.