

# System Features Update

*as of 8/26/02*

Tue, Aug 27, 2002

Several new features and changes have been made to the system code during recent months that are to be installed in the Linac area on 8/28/2002. This note is a list of the changes made.

1. Calendar Time support includes GPS-derived GMT time-of-day, so that any clock event can be time-stamped in this way. This was added to help support MiniBooNE.
2. Network Table Lookup support provides faster table-lookup to replace nonvolatile memory searching. It is implemented via a 64K-byte structure at 0xEE0000 in the PowerPC, or at 0x1E0000 in the IRM.
3. LATBL efficiency improvement means that a dynamic memory copy of the LATBL, or Local Applications Table, is maintained for faster than scanning through such entries. The fast memory copy is located at 0x1800 in either system. More accurate timing of 15 Hz execution of each LA is provided with resolution of 1 microsecond. A new version of PAGELAPP is available that support this. The 0x1D-type Data Access Table entry provides 1 microsecond timing for all LAs.
4. RDATA efficiency improvement maintains a dynamic memory copy of the Data Access Table to speed up RDATA processing on each 15 Hz cycle. The Update Task timing diagnostics have been changed to microsecond units. The dynamic memory copy of RDATA is at 0xEF1000 in the PowerPC systems and at 0x1F1000 in IRMs.
5. Most CODES table searches are short-circuited by recording where a match was found for each LATBL entry the last time such a match in the CODES table was sought.
6. New listype (95) added to support pseudo node number translation. The program that takes advantage of this is PAGENETF.
7. A bug was fixed in support of the offset word for RETDAT support for PowerPCs. This problem surfaced in noticing that Acnet Page L23 was not working properly.

New local and page applications that take advantage of the new system features are:

LOOPAAUX	Acnet Aux support announces new findings to IPNODGetSet package.
LOOPDNSQ	DNS reply support announces new findings to IPNODGetSet package.
PAGELAPP	Displays elapsed time for 15 Hz cycle calls to LAs in $\mu$ sec resolution.
PAGEMBLK	Works properly with online LATBL
PAGENETF	Pseudo node numbers translated to more friendly native node numbers.

New data stream entries in DSTRM table are:

IPNODLOG	1, 16, 40, 0x1000, 0x00D000 (IRM) or 0xE0D000 (PPC)
ITTLOG	1, 16, 8, 0x1000, 0x1F2000 (IRM) or 0xEF2000 (PPC)