Year 2038 issue for 32-bit LinPAC

Applies to:			No. L7-001
Platform	Software operating system	OS version	Classification
LP-8x4x	Debian	All version	Troubleshooting
LP-2000 / 5000 series LP-8x2x / 9000 series	Ubuntu		

When engineers developed the first UNIX computer operating system in the 1970s, they decided that time would be represented as a signed 32-bit integer and be measured as the number of seconds since 12:00:00 a.m. on January 1, 1970.

32-bit date and time systems can only count to 2,147,483,647 which translates into January 19, 2038 (3:14:08 am).

The maximum number of seconds that can be represented in a 32-bit quantity will be exceeded after Jan 19, 2038 at 3:14:07 GMT. On this date, any C programs that use the standard 32-bit time_t library will have trouble calculating the date.

Therefore, in order to avoid the **time_t** become negative value causing effective destruction when the clock strikes 14 minutes and seven seconds past three on the morning of Tuesday 19 January 2038 UTC, ICP DAS provide a file to fix such error in LinPAC SDK, user can add header file "**y2038fix.h**" manually in the program as below:

```
#include  "y2038fix.h"
#include  <stdio.h>
#include  <time.h>
int  main(void)
{
    .........
}
```

When calling a "**y2038fix.h**" file, be sure to pay attention to the following items:
1. Due to the time_t type is modify from long to unsigned long already, time_t type is not less than 0.
2. Therefore, to change the definition of the time_t data type, in the process that could have potential risk.

Here is download link for the latest LinPAC SDK:
LP-8x21, LP-9x21 series : https://www.icpdas.com/en/download/show.php?num=915&model=LP-9421
LP-2241, LP-5231 series : https://www.icpdas.com/en/download/show.php?num=1195&model=LP-5231

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