

MCR10021

Fix Incorrect Alignment in `kst_attributes.incl.pl1`

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1 Issue

This MCR addresses ticket:

<https://sourceforge.net/p/dps8m/tickets/38/>

The structure declaration of `kst_attributes`, in the file `>ldd>incl>kst_attributes.incl.pl1`, is shown below.

```
dcl 1 kst_attributes aligned based (kstap),
  2 set unaligned,
    3 (allow_write,
      tms,
      tus,
      tpd,
      audit,
      explicit_deactivate_ok) bit (1),
    3 pad bit (39),
  2 value unaligned,
    3 (allow_write,
      tms,
      tus,
      tpd,
      audit,
      explicit_deactivate_ok) bit (1),
    3 pad bit (30);
```

It is pretty clear that the `kst_attributes.set.pad` field was intended to be declared as `3 pad bit (30)` rather than `3 pad bit 39`). The result of this typo is that the next word (`value`) will be non-word aligned, and, in fact, begin 9 bits into the second word of the structure. As can be seen, the `value` field is correctly padded to 36 bits.

The following programs reference this structure:

- backup_dump_recurse.pl1
- change_kst_attributes.pl1
- do_prt_request_.pl1
- et.pl1
- output_request_.pl1
- set_kst_attributes.pl1 (hardcore)
- test_cpu.pl1
- write_notify_test.pl1
- g115_output_request_.pl1 (obsolete)

All of these will have to be recompiled, and their corresponding bound segments rebound. `set_kst_attributes.pl1` is in `hardcore (bound_file_system.s.archive)`, necessitating a new `hardcore` tape.;

2 Proposed Change

The proposed change is to correct the `pad` field in the `kst_attributes.set` field to `3 pad bit (30)`. Additionally, all sources that include this include file will be recompiled and rebound. A new `hardcore` tape will be generated.

3 Implications of Fix

Any programs that manipulate KST attributes, including callers of `phcs.$set_kst_attributes` and `hphcs.$set_kst_attributes`, will have to change. Any user programs not included in the standard Multics packages (.e.g. `author-` and `installation-maintained` programs, will have to be recompiled and rebound).