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CONVERTING TO THE
SECOND VERSION OF
THE SLAC UNIFIED GRAPHICS SYSTEM

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A second version of the SLAC Unified Graphics System has been prepared and is now ready for use. This document describes the changes a programmer will have to make to convert from the old system to this new version. The new system will not be described in this document; it is described in CGTM No. 170. The examples in this document only show the changes to FORTRAN programs; the changes to PL/1 programs are similar and should be apparent except that the new system runs under the PL/1 Optimizing Compiler and not the F-level Compiler.

There are a number of reasons for preparing a new version of the system. Some of these reasons are:

1. A number of improvements and changes have been suggested which could not be added to the old system without causing trouble for some programs.
2. The old system was not consistent in certain respects. For example, in the new system, the first argument of essentially all subroutines is an options list.
3. The problems involved in converting the old PL/1 system to the new PL/1 Optimizing Compiler suggested many improvements.

The result is a much improved system, both externally and internally.

A description of the changes a programmer will have to make to use this new system is given below.

GRAPHIC ELEMENTS AND OPTIONS

UGBINT...No change

UGEPNT...No change

UGEIIN...No change

UGEXVC...No change

of YSPACINC=0.01367. This normally cause any problems

UGERTS...No change

UGELNS...No change.

UGAYIS...No change.

UGEDNS...No change.

UGELNV...Will not be converted.

UGEDTA...The calling sequence has been changed to include an X and Y coordinate. The calling sequence is now the same as UGETYT.

GRAPHIC DATA SET CONTROL SUBROUTINES:

UGOPEN...The options items ~~UGOPEN~~ and IDSCOPE are no longer available. The default DDNAME for all devices is UGDEVICE.

The options items to select a device are now:

CALDESM...CALCOMP 10 inch drum plotter.

CALDELG...CALCOMP 33 inch drum plotter.

CAL16MU...CALCOMP 16mm Unsprocketed Microfilm.

CALFICH...CALCOMP Microfiche.

VEP1100...Versatec Electrostatic Plotter, Model 1100.

PDS4013...Save pictures for a TEKTRONIX 4013 in a partitioned data set.

PDSPDEV...Save pictures in untranslated form in a partitioned data set.

IBM2250...The IBM 2250 display console.

SLACITV...The SLAC experimental display console.

TEK4013...Interactive use of the TEKTRONIX 4013.

Most of the other options items for UGOPEN have not been changed.

UGCLOS...The single argument has been changed to an options list. A null options list causes the active device to be closed, but no other device is made active.

UGSICT...An options list has been added as the first argument.

UGSCAL...No changes.

UGINFO...This subroutine has been replaced by two new subroutines. To get the information supplied by UGINFO, you may write:

```
CALL UGDINF ('DEVTYP,DEVID*',STRING,IDENT,DUMMY)
```

```
CALL UGRINF ('GET*',IARRAY)
```

where IARRAY now has a dimension of 8.

DISPLAY DEVICE CONTROL SUBROUTINES:

UGEPUT...Some seldom-used options items have been deleted.

UGPICT...For non-interactive devices, the IDENT argument must be zero to start a new picture.

UGCIRL...IARRAY now has a dimension of 8 and a number of seldom-used options items have been deleted.

UGEGET...No change.

ATTENTION CONTROL SUBROUTINES:

No changes have been made in keyboard and light pen control, however all of the other attentions have been changed.

UGEATN...No change.

UGDATN...No change.

UGRATN...An options list has been added as the first argument and the dimension of IARRAY is now 3.

KEYBOARD INPUT BUFFER CONTROL SUBROUTINES:

UGKEUT...Some seldom-used options items like LCASE are now specified in UGKGET.

UGKGET...An options list has been added as the first argument.

LIGHT PEN INPUT BUFFER CONTROL:

UGLEUT...Will not be converted.

UGLGET...Will not be converted.

MISCELLANECUS SUBROUTINES:

UGDIDY...An options list has been added as the first argument.

UGVIEW...The name of this subroutine has been changed to UGPROJ. Be careful when making this change because there is a different subroutine named UGPROJ in the old system.

UGORTH...No change.

UGPEOJ...The name of this subroutine has been changed to UG3TO2.

UGCTOL...No change.

UGEDIV...Not available yet.

THE EXTENDED CHARACTER STROKE GENERATOR:

The extended character stroke generator or the basic character stroke generator may be selected at execution time rather than at LINK-FDIT time. The subroutine call:

```
CALL UGCSET('EXTENDED')
```

will load the extended character generator. It is suggested that this call be made before the call to UGOPEN.

UGPTOX,UGXTOP...These subroutines have been replaced by a single subroutine. The equivalent of UGPTOX is done by

```
CALL UGCHAR('PTOX*',CPP,CPS,EC,NSTR)
```

while the equivalent of UGXTOP is done by:

```
CALL UGCHAR('XTOP*',CPP,CPS,EC,NSTR)
```

THE ERROR PROCESSING SUB-SYSTEM:

There should be no unusual changes required in your error processing subroutine (UGXERR) unless you are using an assembler language recursive subroutine. However, the declaration for the external variable has been changed.

UGX001...The name of this subroutine has been changed to UGRERR.

THE OPTIONS SCANNING SUB-SYSTEM:

UGX002...The name of this subroutine has been changed to UGOPTN.

Different libraries must be made available at LINK-EDIT and execution time to get the new system. The libraries that must be made available to the LINK-EDITOR or LOADER are:

```
WYL.CG.RCB.UGFTNLIB
```

```
WYL.CG.RCB.UGPLOLIB
```

for FORTRAN or PL/I respectively. The library which must be made available at execution time is:

```
WYL.CG.RCB.UGRUNLIB
```

Do not mix modules from the old system with the new system; the modules are not internally compatible.

Finally, if you have any problems with this new system, please notify me immediately. I believe that the new system is fully debugged; it has been checked-out using the same test programs that were used on the old system. However, in a system like this, it is impossible to test every possible combination of options. My telephone extension at SLAC is 2861 and my office is in Room 315 of the new computer building.