

1. System Support Overview

The ANSWERS suite of programs is principally designed to be executed on workstations or servers running UNIX or Linux and PC Windows systems.

The list of supported equipment is as follows:

<u>Hardware</u>	<u>Operating System</u>
SUN UltraSparc or higher	SOLARIS 2.6 to 9
PC Linux, Pentium III or higher or Xeon	Red Hat 7.3
PC Windows, Pentium III or higher	WINDOWS NT/95/98/XP/2000

In addition, some of the programs are supported on the following equipment, but these are now considered obsolescent and support may be withdrawn in the future:

<u>Hardware</u>	<u>Operating System</u>
Hewlett Packard workstations Model 700 series	HP-UX versions 9,10
DEC Alpha workstations Model 300,400,500	OSF/1 (Unix)

2. Generic Requirements

2.1 The Computational Programs

The basic computer system requirements for each of the computationally intensive ANSWERS neutronics programs, that is the ANSWERS suite excluding the graphics codes, are identical.

Memory Requirements

For RANKERN, MCBEND, MONK and the WIMS Suite of programs (including MONK5W) the minimum memory requirement is **128 Megabytes of RAM**. As, in the light of modern hardware, this is a very low amount of memory, memory availability is unlikely to be a constraint on running the codes.

The quantity of RAM (and swap space) determines the size of case that can be executed and, to some extent, affects the efficiency of execution of the program since the larger the RAM the less the amount of 'swapping' the computer will have to perform. A small RAM with a large swap space would be inefficient. All the afore-mentioned programs allocate memory dynamically; this means that the size of case that can be executed is determined at run-time from the amount of virtual memory (RAM + swap space) available. As a rough guide, the minimum swap space should be at least twice the size of the RAM. However, the amount of swap space is ultimately determined not only by the size of case that users wish to execute, but also by the other applications for which the computer system is to be used. If

the computer system is to be dedicated specifically to the execution of ANSWERS codes, then, for most purposes, a 128 Megabyte RAM and a 256 Megabyte swap space will be adequate. It is worth remembering that on some systems, swap space may only be increased by re-configuring the system, i.e. re-installing the system from scratch. This is obviously inconvenient and therefore it is prudent to err towards a larger rather than a smaller swap space. On more sophisticated systems, swap space may be increased more easily, although a reboot will normally be required.

Disc Space Requirements

The initial quantity of disc space required is determined by the size of the issue package, that is the executable program(s), the data libraries and the example test cases supplied.

The working disc space requirement is determined by such factors as the number and size of temporary files used, the size of the various types of output file and the type of calculations being performed.

It is difficult to specify generic requirements to cover all eventualities (the size of the individual code issue packages is discussed in more detail below) however, a reasonable amount of free disc space for working would be at least **200 Megabytes** for any of the ANSWERS codes.

Since many workstations are now supplied with large amounts of disk space, disc capacity does not usually present a problem when purchasing a computer system on which to execute ANSWERS programs.

Networking

All machines running ANSWERS programs must have TCP/IP networking enabled.

Other Requirements

For non-graphics applications, ANSWERS programs may be executed on workstations and servers alike, and, as far as workstations are concerned, they may have monochrome or colour displays. Since, however, the calculational codes are best used in conjunction with the graphics tools, it is best to assess the requirements specified in section 2.2 when considering the purchase of a computer system on which to execute the ANSWERS suite.

It is likely that more and more graphics applications will be developed in the future to support the calculational codes, and consequently the purchase of a system to support the integrated package is advised.

2.2 The Graphics Programs

Memory Requirements

For the graphics codes, in particular the VISTA suite programs, a minimum of **128 Megabytes of RAM** is recommended. This is because the windowing operations use substantial amounts of memory and the performance of the programs is severely degraded if insufficient memory is available. This requirement

is compatible with the recommendation of at least 128 Megabytes of RAM for the calculational codes, but as before note that 256 Megabytes is recommended if you are purchasing a new system.

Disc Space Requirements

Disc space requirements are determined by the calculational codes, see section 2.1. The graphics programs do not use a significant quantity of disc space.

Display Requirements

The graphics programs require a colour display with at least 256 colours available. Colour monitors should be high resolution and a minimum size of 16 inches is recommended, 17 inch or 19 inch are however preferable. The standard colour monitors supplied with modern equipment will meet this specification, although the purchaser will normally have a choice of monitor sizes from which to select.

Printers

The ANSWERS graphics codes do not contain their own internal print utilities. The use of the standard screen capture and print facilities built into the window system is recommended, for example the 'snapshot' utility on SUNs. When selecting a printer it is therefore necessary to ensure compatibility between the screen capture utility and the printer capability. The most common print format for such utilities is PostScript and thus a PostScript-compatible printer is an appropriate recommendation for most systems.

2.3 Installation Requirements

ANSWERS program packages are provided on CD-ROM. Minor updates, licence files, etc. may be supplied on 3.5" diskette, via e-mail or via web download.

ANSWERS program packages for UNIX systems are written in 'tar' format using relative, rather than absolute, pathnames.

For PC Windows platforms, ANSWERS programs are written as self-extracting WISE executables.