Buying computer systems for General Practice

General Practice Computing Group

Version 1.1

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Preface

The General Practice Computing Group has been established between a partnership of the Australian Medical Association, the Royal Australian College of General Practitioners, the Australian Divisions of General Practice, the Rural Doctors' Association of Australia, the Medical Software Industry Association, health consumers and government.

Our mission:

> *To improve the health and quality of life of the Australian community through the systematic introduction of management of information in General Practice and between General Practice and other sectors of the health industry.*

Our vision:

> *To ensure that the majority of General Practitioners are at ease with the use of information technology for clinical and administrative purposes by December 2001; and that the technological infrastructure enables nationally consistent linkages and uniform standards throughout the health industry.*

In partnership with the Commonwealth Department of Health and Aged Care, the GPCG has developed a Strategic Framework for General Practice Information Management and Technology. The framework prioritises initiatives to assist GPs utilise Information Technology in general practice.

This "buying guide" is an example of the kind of resources that will be developed by the GPCG to support general practitioners. It is anticipated that this resource kit will be revised and developed with feedback from general practitioners and IT Support Officers in Divisions of General Practice. The GPCG encourages feedback on this document including identification of gaps, suggested amendments or ideas for other resources.

This Buying Guide is a work in progress with the GPCG undertaking the on-going production and maintenance. We wish to make it as useful as possible to general practitioners and those working with them.

We anticipate that this guide will grow as the work of the group grows, and the work of IT Support Officers nationally is gathered.

The latest version of this document is available from www.gpnetwork.net.au/gpcg

If you would like to suggest revisions or additions, or would like to receive a copy of the most recent version of the kit, please send an e-mail to:

gpcg@ama.com.au

Acknowledgments

In 1996 a resource kit was commissioned by the (then) Commonwealth Department of Health and Family Services for intended distribution to general practitioners.

This guide has drawn very heavily on that work, which was undertaken by Mr Ross Davey. The Adelaide North East Division of General Practice obtained Mr Davey's guide from the Commonwealth, to use as a resource for its 1999 Informatics Course. We also wish to thank Dr Oliver Frank who made the work available to the GPCG.

GP Computing

Current situation

Historically, computers have not been used extensively for clinical practice in Australia. However, with the increasing power, reliability and affordability of personal computers and computer networks, many general practitioners are currently considering computerising aspects of their practices.

Computers have been widely used for some time by practices for financial management and appointment scheduling. With the advent of the Practice Incentives Program (PIP), there are now significant financial incentives available to practitioners who computerise aspects of their clinical practice; particularly prescribing.

Practice Incentives Program

The PIP provides quarterly payments to general practitioners. The IT component of the current PIP is designed to support general practitioners using computers in their practices. In the first year of the PIP (commencing in August 1999) three separate payments are available to general practitioners. The amount of each payment will be based on the number of Standardised Whole Patient Equivalents (SWPEs) treated by the GP, as calculated by the formula used by the Health Insurance Commission.

Provide data to the Commonwealth

By registering in the Practice Incentives Program a full time equivalent GP qualifies for the first payment under the PIP. This "provision of data to the Commonwealth" involves filling out the appropriate PIP application form and returning it by mail to the Department. This is the only data that is transferred in the first year of the PIP.

Payment in first year: $3,500
per full time equivalent GP in the practice

Electronic Prescribing

The second PIP payment is available once the majority of practitioners in a practice use computers to generate the majority of their prescriptions. This is a major thrust of the program, requiring a computer for each GP and appropriate prescribing software.

Payment in the first year: $4,000
per full time equivalent GP in the practice.

Capacity for Electronic Communications

To build the capacity of general practitioners to communicate electronically, a further payment is available once practices can demonstrate they are "connected". This requires a modem and an e-mail account. You are not yet required to communicate electronically, just to demonstrate the capacity.

Payment in first year: $2,500
per full time equivalent GP in the practice

For more information contact the PIP Help-line
1800 222 032

Current support

General Practice Computing Group

Provides support at a national level, coordinating and developing resources for use by GPs, Divisions of General Practice and State Based Organisations. The GPCG maintains contact with the sector by hosting an electronic mailing list where subscribers can contribute information and resources and gain access to the latest developments in the field. For more information about the list, send an e-mail to gpcg@ama.com.au.

The GPCG also provides a representational role on various forums and committees to represent GPs in the development of software, standards, etc.

Divisions of General Practice

The main thrust of the GP IT Strategy is aimed at supporting general practitioners as they computerise their clinical practice. Through local Divisions of General Practice, general practitioners will be able to receive a wide range of practical assistance and support. Some Divisions of General Practice provide this assistance already. Grants to each division will ensure that these support services are available to all practitioners by the end of 1999.

In particular, Divisions of General Practice will assist general practitioners to meet the requirements of the PIP. With its focus on basic infrastructure and electronic prescribing, it is anticipated that the PIP will provide a major boost to GP computing nationally.

A Brief Buying Guide

This guide is intended to introduce general practitioners and their staff to a range of issues that might be considered when computerising a practice. It is not exhaustive and will be developed over time on the basis of the experience of general practitioners and those supporting them.

Please feel free to adapt or alter the guide to suit your own needs and circumstances.

It is suggested that the guide be read once at the start of your planning process and then used as a reference for the ongoing development and implementation of your new systems.

Planning

Planning is the most important aspect of successful computerisation.

In particular, it is critical that you document what you expect from the computer system before you purchase any particular system. This section deals with elements of the planning process that you may wish to consider when evaluating your options.

Rather than completely computerising your practice all at once, it may be helpful to think about computerising your practice in three stages:

- The conceptualisation phase: conceptualise your needs – ask what you wish the new system to do for your practice.
- The implementation phase: getting your system installed fully and running well from day one.
- The maintenance phase: keeping your system operating smoothly and securely.

Coordination

Appoint a coordinator. Having a single point of contact for both practice staff and system vendors will ensure that information is managed appropriately. The “plan” should be under constant review during the purchasing process as practice staff articulate their needs more clearly and as you learn of the various options presented by differing systems.

Practice review

This is the first step toward a “requirements specification”. Review your current practice and determine what aspects of the practice you wish to computerise.

A useful way to specify your requirements is to include a list of all staff and practitioners and the various functions that you expect they will be able to perform once the system is established. Include in this list the expected performance of the system (speed of response etc.) along with the level of competence you expect each user to attain as a result of training (for example, work under supervision, work independently, provide advice and support to other users). Provide this list to vendors.

Options to consider include:

patient registration
appointments
billing
financial management
prescribing
referral letters
pathology
patient records
recalls
clinical audit.

These functions can all be achieved with computers, although the costs must be measured against the potential benefits. It should also be noted that moving from a paper based system to a fully computerised practice will not be achieved in one step. Establish priorities and an incremental plan to achieve your goals. Consider a "modular" approach: one software package may not meet all of your needs so you may wish to combine various packages that can work together to provide the best results.

Review available products

Once you have a list of the functions you are hoping to computerise you can begin to compare the features of various systems that are available. You will need to have a general knowledge of computing systems as well as specific knowledge about general practice systems.

General Computing

Review popular computer magazines and books to familiarise yourself with some of the jargon. Popular guides such as "*Buying a Computer for Dummies*"[1] provide basic information that can orient the novice. Speak to associates and colleagues. There are many courses available through TAFE colleges and the like that provide introductory information about computers. Some Divisions of General Practice are providing introductory education about computers. Familiarity with the jargon will assist you later in the planning and assessment process.

[1] Dan Gookin, (1998) Buying a Computer for Dummies, IDG Books Worldwide.

Peer support

There is, perhaps, no greater resource available to you than the experience of general practitioners who have undertaken this process before you. Contact your local Division of General Practice to find colleagues who have computerised and speak to them about their experiences. Ask about the features of systems that they have really enjoyed and ask about difficulties and costs associated with various equipment, functions and requirements.

There is a danger (in computing as in life) that peers will tend to defend and rationalise choices that they have made. You may need to press harder to learn of difficulties that have been experienced than you do to learn of benefits. If time permits, you will benefit from visiting a practice with a "live" system and spending time observing the computerised practice in operation.

Practice visits

Seeing a range of systems in operation will help you to be specific about your own needs. As planning begins you may not be aware of all the possibilities that computerisation can offer. Similarly your view of what can be achieved may be Utopian. Practice visits will allow you the opportunity to see systems in operation and to assess the merits and risks of various options. They will also allow you to ask about issues such as post-sales support and how satisfied they are with a supplier.

Demonstrations

Demonstrations from vendors are of some value if approached with appropriate caution and scepticism. Vendors are usually very familiar with their own systems and can make their operation appear very simple.

Demonstration systems are frequently run on a single stand-alone computer that is specifically set up for the purpose, so its performance may not accurately reflect the performance that will be achieved in a real-life installation.

Demonstrations do allow you to gain an understanding of the range of features and functions that are provided by vendors and will begin to give you an idea of the sort of service that various vendors are prepared to offer.

Requirements specification

The "requirements specification" is a detailed list of functions that you wish to achieve with your new (or refurbished) system.

The more detail the better. The requirements specification will provide you with a checklist for vendors and will allow you to determine which systems best meet your needs. Review and revise the requirements specification as you visit practices and see software demonstrations. Discuss requirements within your practice, both among the practitioners and staff. Your local Divisions of General Practice may be able to assist you in determining your requirements. Some have systems with the different software loaded so you can assess the different packages available.

Formulation of a checklist will also provide a standard set of basic requirements on which vendors can quote. This should allow you to compare quotes on products with similar capacity.

Once agreed, the requirements specification forms the basis of your request for proposal.

Request for Proposal

The request for proposal (RFP) is an invitation to hardware and software vendors to tell you how they propose to meet your needs and to quote a price for that system. It is, therefore, most important that your needs are made clear and explicit in as much detail as is possible.

Ideally, the same vendor would take responsibility for providing software, hardware, training and support for the new system. While this may not always be possible, it avoids the difficulty of having to coordinate a range of vendors yourself, with the compounding effects of different vendors being dependent on each other for aspects of the system (and in some cases being able to blame each other for deficiencies).

A detailed framework for an RFP is included with the guide (see p19).

When different vendors supply different aspects of the new system (for example one hardware and another software) ensure that one of your requirements asks vendors to approve each other's components. Once you have determined what software you will want to use, ask the software vendor to specify what hardware is necessary to run the program efficiently and use this as the basis for your request.

Finance

Computers are not a trivial expense in any practice. Options for finance include:

- cash purchase
- loan & purchase
- lease
- hire purchase

Hardware and software will be only part of your purchase. Be sure to include training and ongoing support in your cost estimates. Also, estimate the cost of the changeover from your existing system to a new one. It appears to be a rule of computing that systems cost more than estimated to buy, and take longer than estimated to install, regardless of how cautious initial estimates are.

Be sure to consult your accountant or financial adviser about the options for financing a new system. Many vendors now offer purchasing plans including a range of financial options. If you wish to explore these options include the details required in your RFP.

Assessment of proposals

Specifying your system requirements and seeking proposals from vendors is likely to be an iterative process. Suggestions from vendors may alter the requirements you specify as part of your plan.

Vendors who do not support you in this process are unlikely to be satisfactory partners in the long-term development of your business.

Review proposals

As indicated above, proposals from vendors may affect your plans for the system. Do not be afraid to review and clarify your requirements. This may require you to go back to all vendors several times with questions and clarifications to ensure you get the information that you need.

On the basis of your requirements specification you can then compare the various options that vendors have presented to you in their proposals. You might also ask your local divisional IT Officer to provide advice on the proposals you have received.

Your aim is narrow the choices to a short list of at least two systems. If you can short list only one system, don't tell the vendor that it is the only system under consideration.

Presentations from vendors

Once you have a short list of possible systems, it is time to have vendors demonstrate their systems to staff and doctors within the practice. Ensure that these presentations are tailored to answer your questions by informing the vendors in advance of any particular queries that you might have.

Clarification of issues

As the process moves forward, particular strengths and weaknesses of various systems should become apparent. Ensure that you document all these issues as they arise. Documenting your questions and the answers provided by vendors will be of great assistance once you move to developing a contract and service agreement with a particular vendor.

Negotiation

Remember that retail price is only part of your total purchase. Computer jargon refers to the "total cost of ownership" or "TCO". This is the purchase price plus the cost of training, maintenance, upgrade, repair and support. It is likely that ongoing upgrades, support, training and maintenance will make up the bulk of your TCO over two or three years.

Hardware provides an excellent example. An "expensive" computer may cost several hundred dollars more than a "cheap" computer in initial retail price. The cost of having a technician repair each system on-site is likely to be in the order of $100 or $150 per hour. This means that a "saving" on the original purchase price of a "cheaper" computer could be

lost completely after only one service call! It is also likely that the "dearer" system will have better support and that the "cheaper" system will be more likely to break down!

Documenting agreements

On the basis of your practice review, requirements specification and the detailed negotiations with vendors, your new system should be well documented. This documentation should be included as part of your contract arrangements.

Timetable

Vendors should provide a detailed timetable for all aspects of the supply and installation of the new system. "Milestones" in the timetable may be used to trigger payments under the contract. Be sure to specify how each milestone will be measured (for example, how long will the system be operated and tested on-site before you judge it to be satisfactory – a day or two or a significant period of operation like a full week or a month?).

Ensure appropriate staff (your staff and theirs) are available at important times in the process. The most important times are during the first week and at the end of the first month, or whenever 'end of period' processes such as the production of recall letters, account statements or overdue debt notices are to be done.

Contract

Many vendors will often offer a standard contract for services offering standard terms and conditions. This is unsatisfactory if you wish to ensure that your specific requirements are met. Include in your detailed requirements specification, the questions you have raised and your understanding of the services to be offered by the vendor as an inclusion in any contract.

The process of developing and specifying your requirements will often mean that you develop a personal relationship with sales representatives of the vendor. This is very important to the ongoing partnership into which you are entering into. It is a mistake, however, to assume that the current representative will always manage your account. Other representatives may have different understandings about levels of service to be provided. The more detail that is documented, the more likely it will be that your needs will be met well into the future.

Implementation

Otherwise appropriate systems will fail if implemented badly. An implementation plan should be developed as part of the negotiations with your new vendor.

Develop plan

Time spent planning the implementation of a new system is a sound investment in your practice. Ensure the plan covers the range of items identified below along with any particular needs that you have identified.

Practice preparations

The practice may need to make physical changes to the office environment to provide for the computer equipment and resulting changes in work practices. Computer monitors and keyboards need to be set up in suitable work areas, printers need to be in convenient positions. The main computer unit/s need to be located so that they are both accessible and secure, have sufficient air circulation and are dust free. Sufficient power points need to be located near the computer units, printers and other devices. Workstations will require important occupational health and safety issues to be addressed for those using them.

To enable connection to the Internet, to use the MedClaims electronic bulk billing system, or to be able to let your supplier maintain your system remotely, a telephone connection point will be needed in a suitable location.

The suppliers on your short list should be asked to visit your practice so that they can assess the physical changes and installations that will be needed, to be able to quote a price for making the required changes. The proposed physical installations and changes and the price should be included in their proposal.

Staff preparations

Maintaining workplace harmony through communication and consultation with staff during this period is essential. It is important to brief staff on the forthcoming changes. Issues to address, include training requirements and whether work roles will change as a result of the implementation.

If a senior staff member has participated in the vendor selection process, he or she may wish to be responsible for communicating with other staff on the progress of the purchase.

It is possible that extra staff will be needed during the early period of the computer implementation; especially for the initial data take-up. The practice needs to invest considerable effort at the early stages of implementation to overcome the initial extra workload, otherwise daily activities may be affected for months after the implementation.

Installation and system testing

If planned well, a computer hardware installation should not greatly affect practice operations. Suppliers should undertake installation tasks that seriously impede staff activities out of practice hours. However most installation tasks can be performed during practice hours with only minimal inconvenience to normal operations.

The installation plan should be a collaborative effort between the supplier and the practice. Planning meetings should involve a representative of the practice doctors, a representative of the staff, the supplier's sales representative and the technical person overseeing the installation.

If an installation is planned and prepared well, many hardware configurations can be set up in a day. Subsequent set-ups for software, networks and operating systems may be performed in the days following the hardware installation.

One of the biggest enemies to a 'pain free' installation is the progressive installation. In this type of installation, equipment is installed as it becomes available. It is recommended that installation be delayed rather than allow the supplier to conduct only a partial installation which necessitates later return for installation of subsequent components.

Data transfer

Transferring patient data on to a new system can be one of the greatest barriers to adopting a new system. There are now several sources of electronic data available to general practitioners to assist in the transition process. Pathology companies are often willing and able to supply electronic data about patients for whom you have requested pathology tests. Similarly, the Health Insurance Commission will supply some demographic data for patients who have been bulk billed by your practice. Call the **HIC on 1300 550 115** for further information about this service.

Software vendors are often able to convert data used by electronic system to suit a new system. Such electronic data can greatly facilitate the transition to electronic records in the practice, as at least some parts of the new records will not require re-typing. It may be worth investing in extra staff time during an intensive data transfer period to bring a large number of records on to the new system. This will help to avoid the need for running "dual systems" for a long period of time. Expanding the number of records available on the new system also allows for realistic levels of system testing.

System testing

Whether the practice is installing a single workstation or a system involving a server, multiple workstations, printers and other components, the set up must be tested and approved at a specific agreed point. This is especially important if the purchase agreement has specified that a progress payment is to be made to the supplier at some time after the installation.

The testing must be meaningful. It should be performed using the software and facilities that will be used for normal day-to-day operations. If one component fails to operate, the whole test has 'failed' and the supplier should conduct the entire test process again when all components are operable.

Testing should cover all aspects of the requirements specification to ensure that all required tasks can be completed.

In larger installations, testing should include "load-testing". Load testing ensures that the system performs adequately under the normal workload of the practice, with staff operating all the workstations, printers and other parts of the system simultaneously.

Similarly, system recovery should also be tested. Almost all general practice systems depend on backup systems to ensure that patient data is kept safe from significant loss. Before payment of the final instalment of the purchase price, the backup systems should be tested to ensure that the backups are really working and to determine whether the procedures for recovering the data after a system failure are effective and efficient.

Documentation of procedures

Any new system will require new ways of doing things. There will be a range of tasks to be performed that have not been part of the practice's work-flow in the past. It is important that these new tasks and procedures are documented clearly, perhaps as part of a practice manual. These tasks should be allocated to particular staff as part of their revised job description.

Some of the important new tasks may include;

- data entry and data checking,
- regular system backup and backup testing,
- routine system maintenance on servers and workstations,
- monthly updating of virus protection software.

Much of the new system will come with documentation from the hardware and software vendors. This will include some routine maintenance tasks. These tasks should be consolidated into a single operational manual.

D-day

The "go live" point can be an exciting and yet daunting time for the practice. Some staff may be anxious and concerned about how they will cope with the changes.

Both the supplier and the practice should ensure that at least one experienced person is available for problem solving on the first day's operation. These staff should be ready to step in quickly and assist any person having difficulty with the changes.

D-day is also likely to be a process rather than a single event. The review of the implementation plan should continue for some months after the system comes "on-line" to ensure that any unanticipated problems are identified and resolved.

A buyer's checklist

Tasks	✔
Establish a coordinator to oversee all aspects of computerisation	❑
Select key staff-members for participation in the planning process	❑
Engage in background reading and familiarise yourself with products available	❑
Ask your local division if they offer assistance	❑
Review the needs of your practice	❑
Write down your major objectives for computerisation	❑
Visit colleagues' practices to review systems that have been in place for 6 – 12 months	❑
Establish desired time lines for each objective	❑
Regularly brief all practice staff on planning	❑
Formulate a detailed list of your requirements of a new system. The more details the better (eg: allows the doctor to hand the script to the patient within 15 seconds of pressing the print button)	❑
Investigate finance options with your financial advisor and with vendors	❑
Formulate a supplier/product shortlist	❑
Appraise the products offered by the various vendors	❑
Formulate a "Request for Proposal" or "RFP" (based on your detailed list of requirements)	❑
Circulate the RFP to your short-listed vendors	❑
Review and refine your requirements according to the responses you receive	❑
Review and refine proposals from potential suppliers and vendors	❑
Document and refine a training, data transfer, implementation and support plan	❑
Select computer system	❑
Arrange finance	❑
Formulate a payment plan which allows you to test the performance of your new system before you pay	❑
Finalise a well documented contract with your supplier, including your requirements for the system, for training, for data transfer, for implementation and support	❑

Prepare the practice and the staff for implementation	❑
Arrange and plan system installation	❑
Arrange for the transfer of data into the new system	❑
Arrange system testing prior to final acceptance and payment	❑
Finalise training for practice staff including the level of skill you expect each to attain (eg. able to prepare script electronically without assistance)	❑
Document new procedures, this is often best achieved during system training	❑
'D-day' – enjoy the pleasures of your new system	❑

A model RFP

Your request for proposal invites suppliers to develop a system that meets your needs and provides you with an estimated price. It is important, to detail as many of your needs as you can. Use the following headings as a guide to developing your RFP.

Reliability, warranty, service, upgrades, training and support are all important requirements and should be included alongside hardware and software requirements.

Covering Statement

Directions to providers, who they should contact, and the date the proposals are required.

Description of the Buyer Organisation

This gives the provider a broad picture of your practice. Include the number of staff and general practitioners, the main type of work conducted in the practice. Include a description of the premises and any systems that are already in place.

Requirements Specification

This should include a description of the areas in the practice where computers are required. This is prepared from the requirements specification outlined during the practice planning process. It may include a list of all staff along with all the functions they will perform on the new system.

Method of Evaluation of Supplier Responses

A description of the criteria used to determine the successful supplier. This outline of the criteria should assist suppliers in developing the best possible proposal. Describe what characteristics of the new system are particularly important in your setting (particular functions, ease of use, adequate training, reliability, price, availability of service and support, etc.).

Details Required

Includes a list of specific questions you would like answered by the supplier.

You could pose questions on the following topics:

- software required (type and number of licenses)
- hardware required (computers, wiring, furniture)
- system documentation to be supplied (manuals for system operation and maintenance)
- maintenance and ongoing costs (detailing what maintenance is provided – including response times - and what will have to be purchased later)
- training to be provided (including duration, which staff, timetable, on-the-job vs classes or demonstrations)
- implementation timetable (vendors should provide a detailed implementation plan including all aspects of installation and training)
- ongoing support (arrangements for ongoing support including "troubleshooting" and advanced user training).

Cost Quotation Format

This section stipulates the format and detail required for the cost quotation section of the supplier's proposal. This ensures sufficient detail is provided. Each purchase component should be listed in as much detail as possible. Receiving this information in a format that you determine will make it easier for you to compare the proposals of various system vendors and may follow closely the details listed in the section above.

Required Conditions of Purchase

This outlines the major purchase conditions for the system. This may include descriptions of progress payments, documentation needed for the purchase agreement, testing and proof that the system is working before final payment and an implementation timetable.

Suggested Configuration

This describes what the purchaser considers to be the likely requirements or plan for the computer system. This will include the number of users and main tasks they will perform. This gives the supplier an idea of the scale of the computer system expected. The suggested configuration should also allow suppliers to propose alternative or changed configurations and hardware as necessary.

A simple plan of the practice, indicating the position of various system components and functions, may be of assistance to planning.

A hardware comparison worksheet

Supplier: **Date:**
Contact details: **Price:**

Complete one worksheet for each supplier

CPU — *Central Processing Unit – the "brain" of the computer. Measurin speed – calculations per second*

Pentium	❑		
MMX	❑	speed	…… mhz
Celeron	❑		
Pentium II	❑		
Pentium III	❑		
Xeon	❑		

Cache — *Memory used by the CPU to hold data before processing*

None	❑
128k	❑
256k	❑
512k	❑

Motherboard — *This is the "foundation" into which drives, cards, CPU, RAM and other components are added.*

Intel bx	❑	other	……
Intel lx	❑		

RAM — *Fast access memory used like a "desktop" - the more you have the more files you can open at once.*

32 mb	❑	RAM speed	
64 mb	❑	66 mhz	❑
128 mb	❑	100 mhz	❑

Hard drive — *Your computer's "filing cabinet". Files are stored here when not in use and when the computer is off. Files are moved from here into RAM when in use.*

Type			
EIDE	❑		
SCSI	❑	Size	…… gb

Monitor — *The screen that is used to display information.*

Screen size …. Screen definition …… dpi

Graphics Adaptor

A special purpose component in the computer that is used to do all the "computing" required to put pictures on the monitor screen, leaving your CPU to do other things.

Type			
PCI	❑	Graphics memory	…… mb
AGP	❑		

CD ROM

IDE	❑	speed	…… spin
SCSI	❑		

Case type

The "box" the computer is made in. Think about where the computer will sit eg: floor or desktop. Also contains the power supply.

Desktop	❑	Power supply	…… watts
Mini tower	❑		
Full tower	❑		

Expansion slots

Various cards, or components, require "slots" inside the computer. Spare slots means the capacity to add cards (eg sound, graphics, network) at some time in the future

ISA free	❑
ISA used	❑
PCI free	❑
PCI used	❑

Removable storage

Large capacity drives or tapes that can be removed and stored separately to preserve data

tape	❑	Capacity	…… mb
zip	❑		
jazz	❑		
other	❑		

Modem

Allowing your computer to "talk" to other computers across telephone lines. Required for e-mail and WWW.

Internal	Speed	
External	28.8 kbs	❑
	33.6 kbs	❑
	56 K	❑

Other parts

Sound card	❑	type	……
Floppy drive	❑	Cables	❑
mouse	❑	disks	❑
mouse pad	❑	tapes	❑
keyboard	❑	power filter/UPS	❑
other	……		

Warranty

This is perhaps the most important part of your purchase. Ask questions – Where will the computer be fixed? How quickly will parts be supplied?

parts	….	yrs
labour	….	yrs
on-site	❑	
insured	❑	(Will the warranty stand if this supplier goes broke?)

Bundled software

Software that is included in the purchase price of the computer. This will include the operating system but may also include other software.

Win 95	❑	MS Office	❑
Win 98	❑	Anti-Virus	❑
Win NT	❑		
		other	specify ……..

A contract checklist

Questions	✔
Does the contract include a clear, fixed price for the completed work?	❑
Does the contract include detailed specifications of the work that is to be completed?	❑
Does the contract include a detailed timetable for the completion of all work, including both installation and training?	❑
Does the contract include a detailed schedule of payments based on the timetable for completed work? Will you have adequate opportunity to check the completed work?	❑
Does the contract include the provision of adequate documentation for the new system?	❑
Does your ongoing service agreement include arrangements for disaster recovery? Does this include a guaranteed response time when you have problems?	❑
Does the contract include provision for you to access software source code if your software vendor ceases operation?	❑
Does your contract guarantee upgrades for a specified period?	❑
Does your contract address responsibility for “Y2K” or “millennium bug” problems?	❑
Are any special arrangements or verbal agreements made between you and the vendor included in the written contract?	❑