

Notes re Choosing and Purchasing a Laptop

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To begin with, if you actually want value for money when computing, choose a PC, as in Big Beige Case, et al, even allowing for extra power consumption, the optimum size for home and office use being a 17x17x7.5 in/43x43x19 cm/minitower, if available. Which can also be non-new, the reason being, that the BBCase will have standard mountings for motherboards of various types and sizes, plus, the case can be 'modified' for front-end fittings, etc. Always use a good quality PSU, and years, decades, of BBCase service are possible. **Lots of standard add-on space, and hand-room, is available inside, good cooling too, and case fans can be added. Use only full-metal cases, because of possible EMF hazards, especially in regard to children's usage.**

In addition, if small and slim really means a tablet, or even just a smartfone, then do not buy a laptop.....especially if you just need to connect to the Internet whilst travelling..?

However, if more substantial computing portability is required, then some sort of laptop purchase will need to be made, new or secondhand. But, note that **the same 'error' was not made, re motherboard bases being standardised, in the construction of laptops.**

Proprietary commercial vested interests thus prevail, OK! Consequently, motherboard swapping cannot be done so easily, if at all, even within brands, and even models! Plus, **interchange of non-peripheral parts**, except to some extent within actual brand ranges, eg, possibly screens and modems, and, apart from RAM, and SSDs/HDDs, is almost otherwise non-existent, (This manufacturing business 'principle' also applies, these days, to other portable devices such as 'smart' phones.)

This is then, in turn, a licence to print money for expedient manufacturers, re model 'changes' and 'upgrades', which can actually be just cosmetic, further ensuring non-interchangability of parts. This, coupled with consumer cupidity, and 'designer' features, such as slimness, lightness, and 'beauty', means that the practicality of portable computing is always compromised, as well as potentially useful life-span, plus, cost and waste are unnecessarily high. **In turn, an ideal outcome for sweatshop manufacturing, to churn out even more questionable, over-designed, and over-engineered products, with forced obsolescence, and market-dumping of random parts, at ever-inflated prices..?**

In regards to RAM use and RAM swapping in laptops, there is also a proprietary tendency, of late, with some brands, to match a particular RAM speed to a specific motherboard, so that RAM actually in use, may not match that installed, or, given swapped RAM may not work at all. Thus, should this problem occur with any RAM-swapping or replacement, RAM details should be re-checked in laptop manufacturers' specs, and, the correct size, and speed, RAM sticks used instead.

First of all, slimness, lightness, and 'beauty,' really means:

1) The fragility of the case must then be compensated for, by more screws to confer rigidity, plus the more expensive use of metal cases, meaning slimness is offset by consequent weight increase. Also, there now is a semi-monocoq trend away from utilising those handy detachable base-plates that would give ready access to RAM, HDD, plus, fan inspection/cleaning.

2) Motherboards and leads, connectors, etc, all become more fragile, especially ribbon leads, plus, cases become more cramped, cooling is more of an issue, and keyboards, displays, hinges, are also more fragile. RAM and SSDs are increasingly part of the motherboard, thus producing a disposable integrated unit, which may fail catastrophically, even with a minor component fault. Data may be a casualty also if not constantly backed up. **Repairs are increasingly difficult**, meaning more turnover of system units, for the benefit of manufacturers, just another example of forced obsolescence. **Apart from which, case dis-assembly is potentially time-consuming, and so, proceed with caution, the cases, screw points, and fittings themselves, are often frail due to poor or over-design....Google those respective brand/model repair breakdown links, OK!**

3) **The point also can be legitimately made, therefore, that there is no such thing as a hot CPU**, rather, the laptop case into which the CPU Mb and peripherals is fitted does not suit the purpose, having been poorly/overly designed, especially as pertains to cooling passages, vents, grilles, fan(s), etc. **Plus, the smaller the case enclosure, the closer in proximity to each other are the main heat-producing components, being CPU, GPU, and HDD.**

4) **Also re heat**, even the term 'laptop' conveys a poor description of ideal running conditions, and, reckless

advertising has not helped. Laps are not places for booted laptops, of any description, nor are bedspreads, carpets, sofas, etc., rather, utilise firm table-tops, hard-topped lap bean bags, strong folders, etc, as being more suitable. Otherwise, vents are partially choked, dust is gathered around the fan, and as a result, more heat build-up means more material stress, due to a greater range of expansion and contraction. Eventually, some conductive filament, matrix, or join, will break. **The vicious cycle of laptop material stress. Always use temperature-measuring software, OK!**

5) **Bigger cases and fans also mean more efficient cooling.** Customer education for laptop usage on this issue is thus important, including for HDD safety and health, also, bumps and strong vibrations should be avoided, as well as excess heat. Utilise cooling programs for CPU regulation, and also OS software tweaks that control app, HDD, and program running. **Adding bigger rubber feet to the bottom of the case**, to increase ventral air-flow space, and/or an external fan base, will also help, even drilling extra case cooling holes. **Metal cases** will dissipate heat more efficiently, but, cramping and crowding heat-producing components, in the name of 'slimness', will offset this gain anyway.

SSDs are now increasingly being used, with cooler operating temps, and, are not so susceptible to bump and vibration damage. But, they are still only part of the answer to heat dissipation, they must have TRIM and OS tweaks, apart from their tendency to fail catastrophically. **Always have good quality off-line backup, even a Cloud account.**

Secondly, points to look for, re laptop pre-purchase choice:

1) **Mainstream brands will be advisable**, especially those common in your own country, for any parts replacement, plus, look for those compatible with your own domicile, and personal, requirements, especially in regard to ambient operating temperatures.

2) **New is not necessary**, (especially if using Linux, and also, to avoid depreciation \$\$\$.) **But check for obvious signs of ill-use**, surface wear, scuffing, lid-hinge stability, cracks, dusty fan and vents, etc. **Test-running before purchase is mandatory**, as well as opening the case, even a cursory scan being easier with those handy plates in the base. **Look for dust, mould, liquid stains, and any discolouration inside.** **Do your own detailed laptop performance research pre-purchase, re new, or used units, OK!**

3) **Check online for respective CPU operating temps**, and, avoid small cases when these 'hotter' CPUs are being used. **Recheck temps again with a pre-purchase boot-up**, the underside of the case should, at most, feel comfortably warm to the hand, whilst running the system at more than just idle speed. **Give the laptop some work to test operating temps. Units with small, and over-occluded fan vents, should be avoided**, unless you would consider aperture 'renovation'..? This will also reduce fan noise as well as increase air-flow efficiency. **Do not cover the PSU pack whilst powered on..!**

4) **Sensible, serviceable cases are optimum**, with handy detachable plates for convenience, which is also good for cooling, especially if a laptop is to be used on a desk or table, in lieu of a PC. **Note that laptops can also actually be used as desktop PCs**, if external monitors, keyboards, and mouse are used, which means that the case can be opened up, fan vents also, (get out the tin-snips...?), remove the case panels, run on a hard surface, raise the laptop for more space underneath, with extra rubber pads/feet, external fan base, etc.

You can even mount a laptop on a wall, especially if the lid has been removed, spread the wifi aerial accordingly. **Fresh air passing on either side of the case further aids cooling, and, the warmer air rises.** This is a good space-saving way to extend the life of an older, otherwise retired unit, especially if also running less resource-hungry Linux OSs.

5) **Look for sensible, accessible, layout design, inside the case**, especially with the HDD spaced away from CPU and GPU, and the fan being easily accessible for dis-assembly and cleaning, similarly for CD/DVD swap access, if present. **This layout detail can also be checked via Google laptop repair/breakdown demo links.**

6) **On/Off switches being sensibly located**, (inside the closed lid, optimally), that cannot be accidentally tripped, with casual or careless handling. Check the condition of the external PSU connection, and the PSU itself, **plus check the battery life**, if this is important, both for new and secondhand units, the booted OS should provide this detail.

7) **Externally-fitted batteries** that can be easily detached for storage, or, to prevent accidental overcharge on mains power, etc. **Ask Google re maintaining optimal laptop battery health, OK!**

8) **Check the condition and viability of all peripheral connections**, USB slots, external monitor, card slots, wifi switches, CD/DVD, and sundry other connections, etc, both for presence and 'liveness', plus, for suitability of purpose. Similarly, **SSD/HDD SMART** should be checked, either via present OS, or, by piggy-backing to another system.

9) **More valuable units should have physical non-theft locking device(s) present**, but, any other hardware or software security is a personal choice, thus, do note, and remember, that software locks, and passwords, only keep honest people, and owners, out..? Anyway, purchase, and carry, **an external file storage unit** of some kind, be it SD card, flash drive, or, external HDD, **and always kept this separate from the laptop. Cloud storage is an additional useful venue.**

10) **Make sure the PSU pack is matched as being electrically optimal for the laptop: volts and polarity being correct, and, of quality manufacture, plus, higher amps and watts is OK, but, lower amps will mean that PSU and laptop will both run too hot, OK!**

Utility has its own beauty... a catchphrase most applicable to sensible portable computing, especially for useful lifespan, and, optimum \$\$\$.

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