Computers in Traveller: The New Era

"Standard" computers (*FFS, page #48*)

Model#	TL	Vol(m^3)	Mass(tonnes)	Price(MCr)
7	7	5	1	0.5
8	8	5	1	0.4
9	9	5	1	0.4
10	10	6	1.2	0.6
11	11	7	1.4	1
12	12	8	1.6	2
13	13	9	1.8	3
14	14	8	1.6	4
15	15	7	1.4	5

"Standard" computers in Traveller: The New Era are the mainframe/supercomputer/server analogs to todays machines. These machines run multiple programs and store tremendous amounts of information - and are meant to be connected to other machines which serve as terminals. According to FFS (Fire, Fusion, and Steel) these machines can serve as diagnosticians for flight ships and reduce maintenance levels.

A more compacted (and cheaper) version of these machines are "Flight" computers. These machines are streamlined for special purposes - anything from database functions to calculating the proper lift surface configuration for flight. Flight computers have their volume, power requirements, and mass divided by 10, and their price divided by 1000.

There are also FiberOptic version for both standard and flight computers. These machines are largely immune to the effects of radiation damage (according to the original Traveller rules). TNE mentions that usually one of the machines onboard a ship is FiberOptic. FiberOptic machines have their volume, mass, and price multiplied by 2.

"Implant" computers (*FFS, page #84*)

Model#	TL	Mass(kg)	Price(MCr)
7M	12	1.0	0.5
8M	13	1.0	0.4
9M	14	1.0	0.4
10M	15	1.2	0.6
11M	16	1.4	1.0
12M	17	1.6	1.2
13M	18	1.8	1.8
14M	19	1.6	2.4
15M	20	1.4	3.0

"Implant" computers are the relatively equivilant to flight computers. These machines primarily direct any cybernbetics and interface directly to the brain. Like flight computers, they can not reduce the maintenance levels for starships & the like, but can calc jump parameters and allow a person to fly a starship. Details on how it effects abilities are below.

EXTRAPOLATED DATA for smaller (& larger) machines.

Desktop/Laptop computers

Model#	TL	Vol(L)	Mass(kg)	Price(MCr)
7D	9	2	2.5	.02
8D	10	2	2.5	.016
9D	11	2	2.5	.016
10D	12	2.4	3.0	.024
11D	13	2.8	3.5	.04
12D	14	3.2	4.0	.048
13D	15	3.6	4.5	.072
14D	16	3.2	4.0	.096
15D	17	2.8	3.5	.12

These machines are roughly equivilant to the mainframe computer of two tech levels earlier. They can be interfaced directly into starship systems and it's possible to use them to reduce maintenance levels as per their model number. FiberOptic versions are available at twice the volume, mass, and cost. Flight versions are also available at half the volume and mass and one fourth the cost. The flight versions of these computers are often used as powerful terminals in connection to the larger "standard" computers for their tech level.

Handheld computers

Model#	TL	Vol(L)	Mass(kg)	Price(Cr)
7H	11	.2	.5	1000
8H	12	.2	.5	800
9H	13	.2	.5	800
10H	14	.24	.6	1200
11H	15	.28	.7	2000
12H	16	.32	.8	2400
13H	17	.36	.9	3600
14H	18	.32	.8	4800
15H	19	.28	.7	6000

Handheld computers are the smallest computers (aside from inplants) readily available. The handheld models function equivilant to flight computers from four tech levels earlier. At tech level 13, Handheld versions equivilant to standard models can be found for twice the volume and mass and three times the price.

Rules for using computers:

In **Fire Fusion & Steel**, there are some comments about using the implant computers to make queries regarding general and specific topics - and a description which identified them as essentially flight computers for comparison. From that, I've worked out some general rules:

For the purposes of answering general queries - the flight equivilant computers have an asset of 8, and the standard equivilant computers have an asset of 12. A general question regarding well known information would be an easy or average task, a specific question would be a difficult task, and a very specific question would be a formidable (or impossible) task - depending on the referee. An additional rule (mentioned in FFS) is that players can "optimize" their computers knowledge base around specific topics before a game. The number of topics they can optimize around is based on the (model# - 6). i.e. a TL9 computer could be optimized for three topics. This decreases the difficulty of the task by one for those specific topics (how specific is left unspecified), and increases the difficulty of the task for general (non-topic) questions by a DM of -2.

For purposes of involving the "software" skills for those with a implant computer or a direct neural interface, you can optimize the computer around that specific skill (instead of a topic) and gain a -1 difficulty when using "intelligence" based skills and a -2 difficulty when using "education" based skills.

Computer Breakthrough's in Traveller

Breakthrough	Original Traveller	Megatraveller
non-volitale memory	8/9	9
optical storage mediums	8/8	8
massive parallel processing	7/8	8
voice recognition	9/10	9
voice transcription	10/11	10
synaptic processing	10/12	11
25% synaptic processing	14	
50% synaptic processing	16	
(AI breakthrough) Personality Sims	15	15
(Psuedo-Reality) Holocrystal Storage	12/13	13
Direct Neural implants	14/15	14
Side Technologies Holovideo	10	10
Handheld holorecorder		13
artificial eyes	11	11

Now the interesting bits: The neural implant computers are rated very similiarly to the mainframe computers. They both stay similiar in size from mod 7 to mod 9, then they start growing at mod 10 and peak out at mod 13. This led me to believe that the TL12 7M neural implant computer functioned the same as a TL7 Std computer.

Interestingly enough, the breakpoint on size peaked out at TL13 - where the holocrystal memory has been listed as being a breakthrough in computing.

Another interesting bit is the mention of the TL15 Mod 10M neural computer is the first model of neural implant computer capable of "hosting" the virus - making me suspect that it's compatriot the TL10 Mod 10 Std 'mainframe' computer (where they start growing 'bigger') is actually introducing the synaptic processing into the machine. This is essentially hardware that re-writes itself (a step up from re-configuration) to match the needs of the application. They also mention that earlier versions can still contain the virus as "carriers". This leads me to the conclusion that TL9 & previous computers are largely safe from the virus since they're primarily carriers and not
hosts.

Some other additions to the computers (the accessories):

Printer, toner: a portable monochrome printer that works by fusing toner to the printing medium - either paper or specially prepared plastics. The medium is not immediately recycable, but does last quite well. Toner cartridges cost Cr80 and last for 5000 sheets.

TL	Vol	Weight	Price	
8	19 liters	10 kg	Cr4,500	
8	6 liters	4.7 kg	Cr3	(1000sheets paper)

Printer, toner (color): a portable color printer that works by fusing colored toner to the printing medium - either paper or specially prepared plastics. The medium is not immediately recycable, but does last quite well. Toner cartridges cost Cr120 and generally last for 4000 sheets. Normal paper is Cr3 for 1000 sheets.

TL	Vol	Weight	Price
9	28 liters	10 kg	Cr12,000

Printer, electric: a portable monochrome printer that utilizes an immediately recycable medium - polyvellum. The machine uses electrical charges to oxidize polymerized molecules to create defined print areas. Polyvellum can be immediately reused in the printer as well, and is only slightly thicker than cellulose based paper. Polyvellum costs Cr20 for 500 sheets.

TL	Vol	Weight	Price	
9	10 liters	6 kg	Cr5,500	
9	6 liters	6 kg	Cr20	(1000sheets polyvellum)

Printer, electric (color): a portable color printer that utilizes a variant of polyvellum. Electrical charges set oxidation states in polymerized molecules, showing different colors depending on state. Polyvellum can be immediately reused in the printer as well, and is only slightly thicker than cellulose based paper. The colorized Polyvellum costs Cr50 for 500 sheets.

TL	Vol	Weight	Price	
9	12 liters	6.5 kg	Cr15,000	
9	6 liters	6 kg	Cr50	(1000sheets polyvellum color)

VR set, immersive: a light weight helmet and gloves used for immersive virtual reality at lower tech levels. The helmet covers the face with high resolution display and the gloves are tied into the helmet and a small computer optimized to receive input and display graphics. The TL13 model includes major decreases in size due to using a smaller computer - built into the helmet, and a heads up holodisplay.

TL	Vol	Weight	Price
9	1 liter	0.8 kg	Cr6,500
13	.3 liters	0.6 kg	Cr7,000

VR holosuite: With the technological breakthrough in holocrystal storage and more popular hand held holodevices, small holosuites have come into being. Essentially a small (0.5m^3) holodisplay on a 10cm tall base with holographic linked controls. The base includes a TL13 (or TL15) flt computer optimized to function as an interface between the controls, holodisplay, and host computer.

TL	Vol	Weight	Price	Power
13	150 liters	40 kg	Cr44,000	25kw
15	150 liters	10 kg	Cr44,000	10kw

HAIS (High Automation Integrated Systems)

by John Bogan

volume = vol of (powerplant+J-drive+M-drive+sensors+weapons)*0.01
mass = volume (in tonnes)
cost = MCr / 14kl

Minimum Size: TL9-: $70m^3$
TL10-12: $28m^3$
13+: $14m^3$

Engineering Crew: FFS formula * 0.25 (round fractions up)
Electronics Crew: FFS* 0.25 (round down)
Maneuver Crew: no change
Gunnery Crew: see below
Maintainence : FFS * 0.25 (round down)
Ship's troops: no change
command : no change (FFS based on modified numbers above)
stewards (no change)
medical (no change)

HAIS ships divide their maintainence points by 4, after all other MP calculations are done (round fractions up)

Gunnery Crew: on ships with HAIS, weapons fire can be conducted completely from MFD's, and due to the combat advantages of doing so, it usually is. Many (if not all) local weapons crewstations are left unmanned, serving as emergency backup only. When the ship is designed, the designers figure "usual" battery arrangements, install MFD`s to suit, and base gunnery crew levels on that.

Specific requirements:

¥Black Globes: BG's are always fully manned
¥Meson Screens: Meson screens are always fully manned
¥Damper turrets and screens: Always fully manned
¥Turret weapons: May be left unmanned, and controlled by MFD, within MFD limits (only like weapons at one time, etc)
¥Larger weapons: any weapon with a crew greater than 2 may not be left unmanned.(ie: crew of 3+ means no leaving it alone)
¥Note that larger weapons, like a spinal mount with a crew of one, may be left unmanned locally, but likely will have an MFD unofficially dedicated to its exclusive use.
¥Crew is the number of MFD's, plus the number of local weapons crews the designers feel necesary to include.

I tried this with the Destroyer Midu Agashaam 3000 ton destroyer, and got the crew down to 46, with the ability to lose a few more, depending on how many gun crew I want. CT crew was 33, MT was 47.

Pre- Virus:

HAIS is common in all Vilani, Zhodani, and Solomani-influenced regions.
Among aliens:

Aslan do not commonly use HAIS in ship designs.
K'Kree never leave home without it.
Hivers use it
Vargr usage varies widely (did you expect any different?)
Droyne: ? maybe yes, maybe no, ref's discretion.

HAIS ships are highly vulnerable to becoming Vampire ships in the event of Virus infection, due to the high level if connectivity and automation. When non-HAIS ships are infected, the Virus is limited to only the infected sub-system.

The Imperial Navy and Zhodani Navy designs presented in Brilliant Lances are actually the post-Virus refits of those designs, eliminating the HAIS systems. The volume gained using HAIS is mostly devoted to extra fuel. Weapons load remains unchanged

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