# ➤ HMI Micro Clients / Thin Clients

Kontron's Micro Clients/Thin Clients are cost conscious human interfaces. They achieve a superior price/performance ratio through a combination of reduced hardware costs, reduced maintenance and support costs, reduced down time, improved performance and enhanced security.
All programs are run on a central web or Windows server, so that only visualization and user input proceeds locally.

High availability and the lack of local harddisk related problems, makes the user spend more time on his actual tasks.
Performance upgrades due to increasing software demands are done on the servers. Cost and time consumption for upgrading one or few servers are only fractions compared to upgrade all workstations.
These advantages keep the total cost of ownership to a minimum.

With high shock, vibration and temperature resistance, as well as resistance with regard to more stringent EMC requirements, these Micro Clients are particularly suitable for use as an IPC based control system or as a HMI in CAN-based networks with an Ethernet backbone.

The new line of Micro Clients/Thin Clients based on Intel's Xscale architecture with fanless cooling concept offers scaleable display dimensions from 6.4" up to 12.1" with a small depth of 45 mm and is characterized by low power consumption at high proficiency level.








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| Features | Micro Client M@C57 | Micro Client M@C64 | Micro Client M@C64x | M@C84x | M@C104x | M@C121x | Thin Clients T@C64x | T@C84x | T@C104x | T@C121x |
|---|---|---|---|---|---|---|---|---|---|---|
| Availability | ✓ | ✓ | ✓ | ✓ | Q1/2005 | Q1/2005 | Q2/2005 | Q2/2005 | Q2/2005 | Q2/2005 |
| Display | 5.7" QVGA TFT | 6.4" TFT | 6.4" TFT | 8.4" TFT | 10.4" TFT | 12.1" TFT | 6.4" TFT | 8.4" TFT | 10.4" TFT | 12.1" TFT |
| Resolution | 320 x 240 | 640 x 480 | 640x480 | 800x600 | 640x480 | 800x600 | 640x480 | 800x600 | 640x480 | 800x600 |
| Brightness | 350cd/m² | 300cd/m² | 300cd/m² | | | | 300cd/m² | | | |
| Touch Screen | Resistive analog | Resistive analog | Resistive analog | | | | Resistive analog | | | |
| Function Keys | optional | optional | optional | | | | optional | | | |
| Dimensions (mm) H x W x D (Panelmount) | 156 x 189 x 45.5 | 184 x 237 x 60 | 184 x 237 x 45 | 216 x 277 x 45 | 252 x 325 x 45 | 300 x 380 x 45 | 184 x 237 x 45 | 216 x 277 x 45 | 252 x 325 x 45 | 300 x 380 x 45 |
| Processor | Geode™ SC1200 266 MHz | Geode™ GX1 300MHz | Xscale PXA 255 400 MHz | | | | Xscale PXA 255 400 MHz | | | |
| Main Memory | up to 128 MByte SDRAM, up to 128 MByte onboard Flash | up to 256 MByte SDRAM | up to 128 MByte SDRAM, up to 128 MByte onboard | | | | up to 128 MByte SDRAM, up to 128 MByte onboard | | | |
| I/Os | 1x RS232, 1x LAN 10/100, 2x USB | 1x RS232, (RS422/RS485 optional), 1x LAN 10/100, 1x USB | 3x RS232, 1x LAN 10/100, 2x USB, 1x PS/2, 1x CRT | | | | 1x RS232, 1x LAN 10/100 | | | |
| Field Buses | No | CAN bus | CAN bus | | | | No | | | |
| Internal Drives | Compact Flash up to 512 MByte | Compact Flash up to 1 GByte | Compact Flash up to 1 GByte | | | | Compact Flash up to 1 GByte | | | |
| Power Supply | 24 VDC | 24 VDC | 24 VDC | | | | 24 VDC | | | |
| Cooling | Fanless cooling concept | Fanless cooling concept | Fanless cooling concept | | | | Fanless cooling concept | | | |
| EMC | US: FCC47 CFR PART 15; Class A level<br>CE: EN50081-1/-2 (emission); EN50082-1/-2 (immunity) EN55022/ A (CISPR22) | US: FCC47 CFR PART 15; Class A level<br>CE: EN61000-6-2<br>EN55022/A (CISPR22) | US: FCC47 CFR PART 15; Class A level<br>CE: EN61000-6-2; EN55022/A (CISPR22) | | | | US: FCC47 CFR PART 15; Class A level<br>CE: EN61000-6-2; EN55022/A (CISPR22) | | | |
| Approvals | CE, FCC Class A | CE, FCC, cULus | CE, FCC, cULus | | | | CE, FCC, cULus | | | |
| Protection Class | IP 65 front (NEMA 250 type 12 and 13) | IP 65 front (NEMA 250 type 12 and 13) | IP 65 front (NEMA 250 type 12 and 13) | | | | IP 65 front (NEMA 250 type 12 and 13) | | | |
| Altitude | Operating: 10000 ft (3,048m); storage: 15000 ft (4,622m) | Operating: 10000 ft (3,048m); storage: 15000 ft (4,622m) | Operating: 10000 ft (3,048m); storage: 15000 ft (4,622m) | | | | Operating: 10000 ft (3,048m); storage: 15000 ft (4,622m) | | | |
| Shock DIN EN 60068-2-27 | Operating: 5G, 11ms duration<br>Storage: 15G, 11ms duration (half-sinus) | Operating: 15G, 11ms duration<br>Storage: 50G, 11ms duration (half-sinus) | Operating: 15G, 11ms duration<br>Storage: 50G, 11ms duration (half-sinus) | | | | Operating: 15G, 11ms duration<br>Storage: 50G, 11ms duration (half-sinus) | | | |
| Vibration DIN EN 60068-2-6 | Operating: 10-500 Hz: 0.5G / 6 axis<br>Storage: 10-500 Hz: 1G / 6 axis | Operating: 10-500 Hz: 1G / 3 axis<br>Storage: 10-500 Hz: 2G / 3 axis | Operating: 10-500 Hz: 1G / 3 axis<br>Storage: 10-500 Hz: 2G / 3 axis | | | | Operating: 10-500 Hz: 1G / 3 axis<br>Storage: 10-500 Hz: 2G / 3 axis | | | |
| Temperature/Humidity | Operating: 0° to +50°C / 5 to 95% non condensing<br>Storage: -10° to +60°C / 0 to 95% non condensing | Operating: 0° to +50°C / 5 to 95% non condensing<br>Storage: -25° to +70°C / 5 to 95% non condensing | Operating: 0° to +50°C / 5 to 95% non condensing<br>Storage: -25° to +70°C / 5 to 95% non condensing | | | | Operating: 0° to +50°C / 5 to 95% non condensing<br>Storage: -25° to +70°C / 5 to 95% non condensing | | | |
| MTBF | > 40000 h * | > 40000 h * | > 40000 h* | | | | > 40000 h* | | | |
| Verified Operating Systems | Windows CE.net, Embedded Linux | Windows XP Embedded, CE.net, Embedded Linux | Windows CE.net, Embedded Linux | | | | Windows CE.net, Embedded Linux | | | |

*) exclusive Backlight Tube