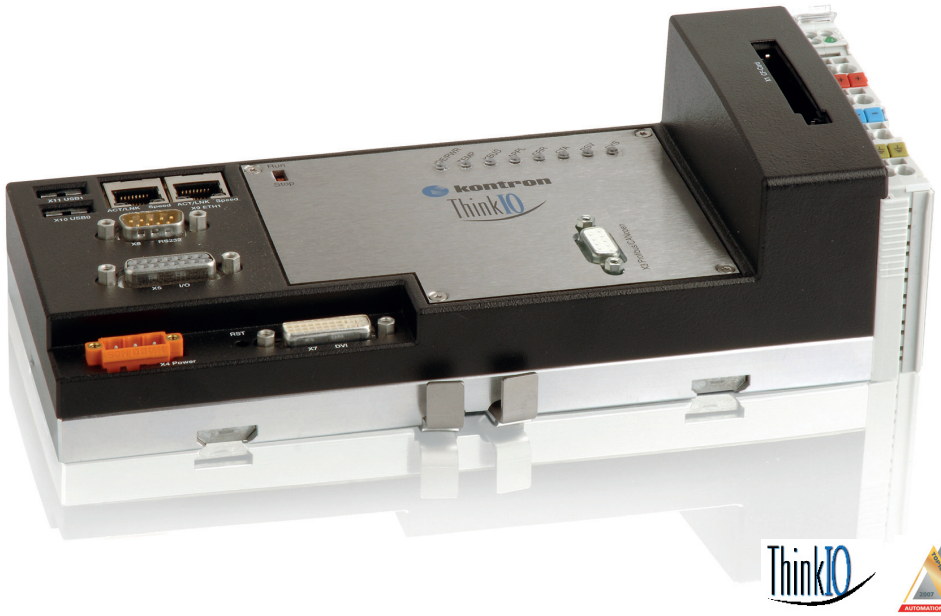
kontron

» ThinkIO-Duo/-Solo «



Dual/Single Core Embedded IPC

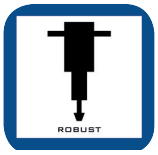
» Scaleable up to Intel® Core™ Duo 1.2 GHz passive cooled
» Rugged and ultra compact
» Maintenance free
» High system availability

ThinkIO-Duo/-Solo

Dual/Single Core DIN Rail PC

ThinkIO-Duo/-Solo achieves exceptional performance in an ultra compact unit. The Industrial PC for DIN rail mounting combines Intel® Core™ Duo/ Solo performance and standard PC connectivity with a rugged design, which is also suitable for harsh environmental applications.

Two independent processor cores allow for parallel computing. Therefore ThinkIO-Duo meets the requirements for demanding control and visualization tasks as well as web server and firewall applications.
The system is designed to decrease the total cost of ownership for OEMs through a very reliable architecture. The completely integrated platform significantly reduces time to market, allowing customers to focus on software development and system integration.



Product Characteristics

Outstanding performance	Intel® Core™ Duo technology, unique housing concept with optimized power dissipation permit a real estate saving, fan less design without throttling Fast onboard IO facilitate quick reaction times
Flexible connectivity	2x GBit and 1x Fast Ethernet or field bus for optical inspection, remote control/visualization, wireless, redundant communication or Ethernet based field bus implementation 2x USB, 1x RS232 and DVI to attach human machine devices
Embedded real-time Linux - Kontron cross compile distribution	Cross compile distribution for minimum hardware requirements 2.6/RT-preempt patch kernel File system protection in case of power failure Distribution independent Command line tool chain included Configuration via web browser (network, security, backup,clock, graphics) Remote update Protection of investment through open source idea
Embedded real-time Linux - Debian desktop distribution	Desktop distribution with PC look and feel for quick commissioning 2.6/RT-preempt patch kernel File system protection in case of power failure Sophisticated package management system DVD image for CF card installation downloadable from Web Protection of investment through open source idea
Windows XP embedded BSP	Componentized version of XP Professional tailor-made in memory size Run-time image creation with Windows Embedded Studio
Beneficial industrial design	Compact: (224 x 100 x 70) mm Long term available embedded roadmap components 512kB retain memory Watchdog relay output Highly scalable, directly attached, modular IO option: WAGO-I/O-SYSTEM 750/753 Easy international certification based on CB scheme Field bus option: Profibus DP, CANopen, Profinet Field bus configuration tool comes with BSPs on DVD
Maintenance free, reliable design	No fans No batteries No rotating mass storage (HDD), soldered onboard flash
Excellent operational availability	Improved vibration resistance through soldered components and solid mechanical design/mounting. Qualified with 4g acceleration instead of 1g demanded for "industrial grade/programmable controllers" (IEC 61131-2) Higher electromagnetic compatibility facilitated by full metal housing and electrical design. Better emission standard EN55022/class B and FCC class B compliant instead of „industrial" (EN61000-6-4). Integrated temperature monitor provided in hardware and software.

Technical Information

Processor	Intel® Core™ Duo U2500 2x 1.2 GHz, Intel® Celeron® M Processor ULV 423 1.06 GHz
Chipset	
GMCH	945GM
IOCH	ICH7-M
Memory	
DDR-SDRAM	512 MByte / 1 GByte
CF onboard, soldered	512 MByte / 2 GByte / 4 GByte
CF external	Socket type I+II for CF cards and microdrives
Non volatile memory	512 kByte
System I/O	
Ethernet	2x 10/100/1000 Base-TX, additional 1x 10/100 Base-TX if no field bus is used
USB	2x USB 2.0
Serial	1x RS232 with all handshake signals
Digital In	7x 24 V, high side switching, opto-isolated, with hysteresis <5 V / >11 V
Digital Out	2x 24 V / 0.1 A, high side switching, opto-isolated, overcurrent protected
Watchdog	1x relay output (max. 32 V DC / 1 A)
DVI-I	Digital (panel link) and analog (CRT/VGA via adaptor)
RTC	Gold cap backup
Status LEDs	4x / 8x tri-colored: IDE/Power, Temperature, KBUS, Application / field bus
Run / stop	1x switch
Reset	1x button
Modular IO (optinal)	
WAGO-I/O	1x right side, connection to WAGO-I/O-System 750 / 753 clamps
Field bus (optional, one at the time only)	
Profibus-DP master	1x DSUB-9 female
CANopen master	1x DSUB-9 male
Profinet RT controller	2x RJ45, switched
Software	
BSP	Windows XP embedded, embedded real-time Linux distributions
Environmental	
Supply	Nominal 24 V DC (-20%/+30%), 30 W dual core, 26.5 W single core
Temperature operating	0°C to 55°C, extended temperature depending on configuration/on project request
Compliance	Operating temperature IEC 60068-2-1 / IEC 60068-2-2 Vibration IEC 60068-2-6 (4 g) Shock IEC 60068-2-27 (15 g) Safety CB scheme Immunity EN61000-6-2 Immunity EN61000-6-2 Emission EN61000-6-3, EN55022/class B, FCC class B Protection class IP20 DIN 35 Rail mounting EN50022
Construction	
MTBF (Mil, 30°, GB)	139.000 h - 195.000 h (dependent on field bus and WAGO-I/O configuration)
Dimensions	224 x 100 x 70
(w x h x d) / mm	236 x 100 x 70 (with WAGO-I/O interface)
Housing	Aluminum, passive cooled, no fan
Weight	Approx. 1100 gr.
Mounting	DIN Rail TS 35

Ordering Information

	CPU/RAM	Flash	Field bus	WAGO-I/O	License
TIOD	- S4 1.06 GHz 1 GByte	3 512 MByte	- X1A no field bus, 3x LAN	1 no WAGO-I/O	- B no license, order BSP separately
	- U4 2x 1.2 GHz 1 GByte	5 2 GByte recommended minimum for XP embedded	- B1A Profibus master	2 with WAGO-I/O, end clamp included	
		6 4 GByte recommended for Linux desktop distribution	- D1A CANopen master		
			- P1A Profinet controller		

Ordering Information

Article	Part No.	Description
LIN-BSP-THINKIO-D	35932	Embedded real-time Linux 2.6 BSP with RT-preempt patch, cross compile distribution
WXP-BSP-THINKIO-D	35933	Windows XP embedded BSP for Windows Embedded Studio
THINKIO-W-...	...	WAGO-I/O, please ask for available clamps
CP-ADAP-DVI-CRT	24368	DVI to CRT adaptor
TIO-SURGE-HOLDUP	37305	24 V surge filter module with 10 ms holdup time, GL and EN50155 compliant

Note: Manuals are provided with software packages and are also downloadable from www.kontron.com/thinkio
Information on WAGO-I/Os can be obtained from www.wago.com.
Field bus configuration tool Sycon.net on software DVD (BSP,...) or obtainable from www.hilscher.com

Your requirement: Dual Core CPU, 1 GB RAM, WAGO-I/O, application development under Linux
You order: TIOD-U45-X1A2-B, 35040, additional WAGO-I/O modules
You get: ThinkIO-Duo, 2x 1.2 GHz, 1 GByte RAM, 2 GByte Flash, WAGO-I/O interface, WAGO-I/O end clamp, additionally ordered WAGO-I/O modules, Linux 2.6 BSP including documentation on DVD, preinstalled Linux image

CORPORATE OFFICES

Europe, Middle East & Africa
Lise-Meitner-Str. 3-5
86156 Augsburg
Germany
Tel.: +49 (0) 821 4086-0
Fax: +49 (0) 821 4086 111
sales@kontron.com

North America
14118 Stowe Drive
Poway, CA 92064-7147
USA
Tel.: +1 888 294 4558
Fax: +1 858 677 0898
info@us.kontron.com

Asia Pacific
17 Building,Block #1, ABP.
188 Southern West 4th Ring Road
Beijing 100070, P.R.China
Tel.: +86 10 63751188
Fax: +86 10 83682438
info@kontron.cn

Datasheet – Think IO Duo/Solo #1210201 4WMH
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