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Product Overview

The new Zero Client is based on a proprietary SoC (System on a Chip) which has integrated a special designed RemoteFX processor, and is designed to deliver a user's desktop from a centralized host server with an immaculate, uncompromised end user experience across standard IP networks – including HD video, complete USB compatibility, and full-duplex high-definition audio. The new Zero Client is an endpoint client device (4.32 x 4.31 x 1.03 inches) that resides in a remote client access device which supports RemoteFX and RDP (Remote Desktop Protocol) sessions for Microsoft's Remote Desktop Connection.

The new Zero Client separates the user from the centralized PC or server, which provides connecting to a computer/server running Windows from the small Zero Client box that's connected to the same network or to the Internet. It's a nice way for anyone who can use all of his/her work computer's programs, files, and network resources from his/her Zero Client box at home, and it's just like he/she is sitting in front of his/her computer at work. The user who owns the small Zero Client can also connect to his/her home or office computer from another room or any location provided he/she has internet connectivity.

The Zero Client gives end users complete remote display and I/O functionality. The Zero Client at the remote site receives and decodes signals from host PC/server, and creates standard video interfaces for the display, USB peripherals and audio. The Zero Client also supports a reverse communication path for items like USB keyboards, mouse, microphone audio and other peripherals. It is connected to the network via standard Ethernet using RJ45 at 10/100/1000Mbps.

The new Zero Client provides the following benefits:

- High cost effectiveness and powerful client performance in virtualization solution that integrated with Microsoft RemoteFX and RDP
- Embed with the latest RDP hardware decoders and accelerators. RemoteFX/RDP processor in the client processor supports high performance RemoteFX/RDP bitstream entropy decode
- Support for up to one 1920x1080 high-resolution, perception-free DVI-I video output and USB 2.0 peripherals allows host PC/server relocation to the a central place or computer room without compromising end user experience or productivity
- Robust PC experience delivered to the end user using existing Ethernet networks, enabling low cost, straightforward kiosk or digital signage functionality.

The new Zero Client ships with one 4Gbit of DDR3 memory and supports one DVI-I, three USB, a Microphone, a Headphone and an RJ45 Ethernet connectors. Output is driven by the DVI port for video and USB 2.0 ports for peripheral and I/O connections.

The net result is a fan-less and reliable client-side device that requires minimal management and support since all processing resides on the host PC/server.

Key Features

Processor

- Processor: ARM® ARM1176™ 1GHz client processor
- Process: 40nm
- Package size: 456-pin TFBGA (19 x 19 mm package), 0.8 mm ball pitch

Board

- 6 layer printed circuit board (PCB)
- PCB physical dimensions: 3.94 inches (width) X 3.74 inches (length)
- Device physical dimensions: 4.32 inches (width) x 4.31 inches (length) x 1.03 inches (height)
- Maximum power consumption: 8 watts (with HD video playback, keyboard/mouse and one high power consumption USB device)
- Thermal: Passive heat sink

Connectors

- One single-link DVI-I connector
- Three front Type-A USB 2.0 connectors
- 3.5mm Headphone jack
- 3.5mm Microphone jack
- RJ45 Ethernet connector
- 10/100/1000Base-T copper interface with Link and Activity LEDs
- 5V DC Power jack

Memory

- 1 x 4096 Mbit 16-bit DDR3 DRAM devices (512MB DDR3-1866)
- 1 x 256 Mbit of serial flash for high-speed system booting

Audio

- High Definition Audio serial link. Supports a single audio codec.

USB

- Three type-A USB 2.0 interfaces
- USB 2.0 bulk support
- USB 1.1 isochronous support
- Support up to 500mA per USB port
- Support configurable Wake-on-USB (WoUSB) for remote-wakeup capable USB devices
- Overcurrent and power down logic to complement standard power regulators

10/100/1000 Ethernet Media Access Controller

- Dedicated for virtualization traffic
- Auto-negotiation of link speed and duplex mode
- Flow control using back pressure for half-duplex mode and pause frames (IEEE 802.3x) for full-duplex mode
- Support Wake-on-LAN (WoL) using magic packet

Security

- Wire speed AES GCM 128/256 bit encryption/decryption for network traffic

Processor Description

The Zero Client uses the ARM ARM1176 client processor. The ARM processor resides inside a small, simple, stateless access device under any usage scenario. It receives and decodes these signals from the host Virtual Machine to create standard PC interfaces for the display, USB peripherals, and audio. The ARM client processor also supports a reverse communication path for items like USB keyboards, mouse, microphone, audio, and other peripherals. The ARM client device offers functions such as:

Perception-Free Remote GUI

- By interfacing at the physical layer, and using specialized decoding algorithms running on a high-performance multi-core processing engine, the system provides a perception-free remote GUI that is completely independent of any operating system
- This enables all of a PC's active components to be centralized for better management and security while ensures that the user maintains a 100% full, rich PC experience.

Image Processing Technology

- Encodes digital video input in real time and is capable of dynamically adjusting the compression to the available network bandwidth
- Optimizes compression algorithms and quality in real time to achieve the best possible image quality for the available network bandwidth, thus allowing the client device to operate in various types of networks and data rates.

Security and Authentication

- Programmable AES/DES/3DES/RC4 encryption or decryption mode with programmable context buffer location for fast context switching
- Support RSA algorithm hardware acceleration. The supported bit numbers for modulator and exponent are from 32 bits to 4064 bits.

Display Options

The Zero Client device supports one DVI-I output.

- One digital flat panel displays with a maximum of 1920x1080 resolution at 60Hz
- One analog CRT display (through the DVI-I output)

Configurations

This table lists the configuration currently available for the Zero Client device.

Specification	Description
Chip	ARM ARM1176 1GHz Client Processor
Chip package size	19 mm x 19 mm
Memory type	4096 Mbit 16-bit DDR3 DRAM (512MB DDR3) 256 Mbit of serial flash for high-speed system booting
Physical dimensions	4.32 inches (width) x 4.31 inches (length) x 1.03 inches (height)
Maximum device power	8 watts (with HD video playback, keyboard/mouse and one high power consumption USB device)
Connectors	One single-link DVI-I connector Three front USB 2.0 connectors 3.5mm Headphone jack 3.5mm Microphone jack Ethernet connector using RJ45 at 10/100/1000Mbps 5V DC Power jack
LEDs on the bracket	Connect LED for host-client session Power LED for client's power state indicator
Button	Device Power Button
Thermal cooling solution	Passive heat sink
Operating / Storage Environment	Humidity - Relative (non-condensing): 10% to 90% - Storage: 5% to 95% Temperature - Operational: 0 to 40 degree C - Storage: -20 to 70 degree C
Mean time between failure (MTBF)	303,646 hours at controlled 40°C environment

Mechanical Specifications

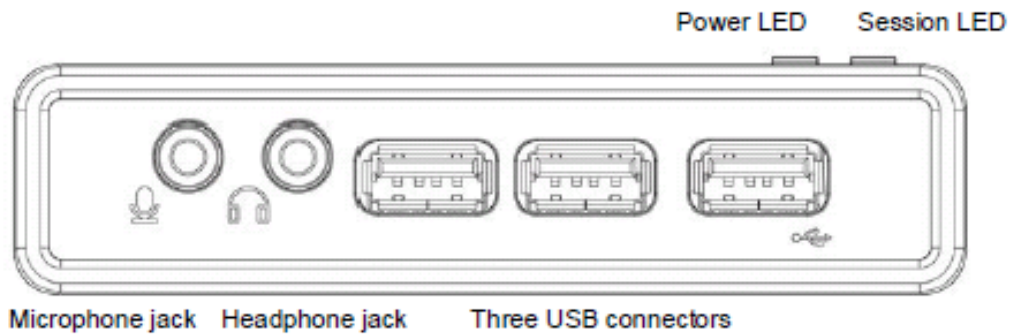
Device

The Zero Client conforms to the small, simple (4.32 inches by 4.31 inches) device using the ARM client processor.

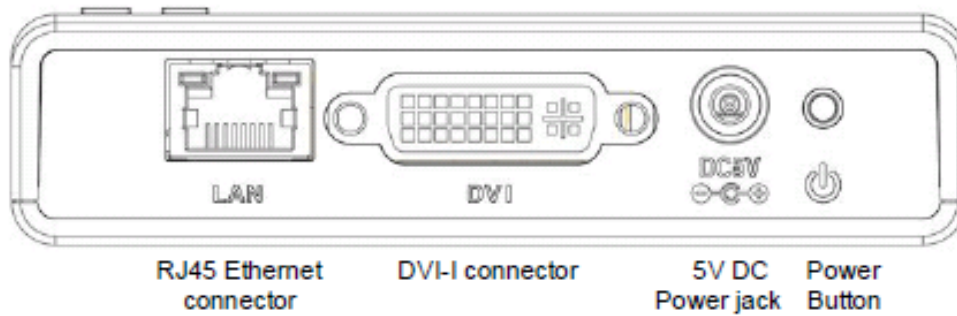


Zero Client for RDP

Placement of Standard I/O Connectors



Front Side of Zero Client



Rear Side of Zero Client

Standard Connector Placement

VESA Mount

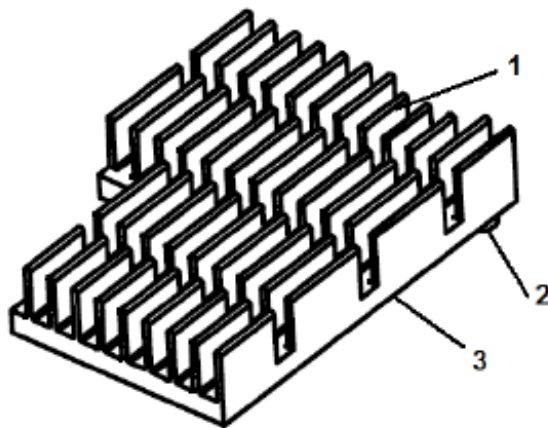
The dimension of the optional VESA Mount bracket is 4.45x0.79x0.16 inches. It fits screens with 75x75mm or 100x100mm of VESA mounting patterns.



Thermal Specifications

Cooling Solution

The Zero Client utilizes a passive heat sink over the Processor for cooling.



No	Description
1	Heat Sink
2	Screw (x4)
3	Pad

Support Information

Desktop/Cloud Environment Support

- Microsoft Windows 10/8/7/Vista/XP with Remote Desktop Protocol (RDP) 8.1, 8.0, and 7.1 protocol
- Windows Server 2012 and 2008
- Windows Multipoint Sever 2012

System Requirements

- One DVI or VGA compatible monitor
- USB keyboard and mouse
- Optional: PC headphone, microphone and other USB peripherals
- Ethernet LAN switch or router (10/100/1000 Mbps)

Package Content

- Zero Client device
- Power adapter (5V, 3A) and power cord
- Quick installation guide
- VESA Mount kit (with monitor screws)

Certificates and Agencies

- Conformité Européenne (CE)
- Federal Communications Commission (FCC)
- CAN ICES-3(B)/NMB-3(B)
- Underwriters Laboratories (UL)
- GOST/CU
- BSMI
- RoHS

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