CLACK-MAINFRAME SYSTEM ARCHITECTURE (16-BIT RELAY MAINFRAME ECOSYSTEM)

POD 01
16-Bit Manchester ALU
Sub-2ns Carry Bypass

Form Factor: Eurocard 3U
Dimensions: 220 x 120 mm
Technology: 100% THT
Relays: HKE SIP-1A05
Bus Header: J_CLACK_STACK

HOT-PLUGGABLE SLICE

POD 02
16-Bit Register File
ACC, R0..R3, TMP (64 Relays)

Form Factor: Eurocard 3U
Dimensions: 220 x 120 mm
Technology: 100% THT
Relays: HKE SIP-1A05
Bus Header: J_CLACK_STACK

HOT-PLUGGABLE SLICE

POD 03
PC, MAR & Stack Engine
100% Pure Relay Logic (64 Relays)

Form Factor: Eurocard 3U
Dimensions: 220 x 120 mm
Technology: 100% THT
Relays: HKE SIP-1A05
Bus Header: J_CLACK_STACK

HOT-PLUGGABLE SLICE

POD 04
Sequencer & Pulse Driver
10V/2.5V Overdrive (0% ICs)

Form Factor: Eurocard 3U
Dimensions: 220 x 120 mm
Technology: 100% THT
Relays: HKE SIP-1A05
Bus Header: J_CLACK_STACK

HOT-PLUGGABLE SLICE

POD 05
Eurocard 3U Backplane
6-Slot Passive Interconnect

Form Factor: Eurocard 3U
Dimensions: 220 x 120 mm
Technology: 100% THT
Relays: HKE SIP-1A05
Bus Header: J_CLACK_STACK

HOT-PLUGGABLE SLICE

POD 06
64x64 Matrix Display
Dual-Port VRAM & HUB75

Form Factor: Eurocard 3U
Dimensions: 220 x 120 mm
Technology: 100% THT
Relays: HKE SIP-1A05
Bus Header: J_CLACK_STACK

HOT-PLUGGABLE SLICE

POD 07
Math Coprocessor
Hardware Multiplier/Divider

Form Factor: Eurocard 3U
Dimensions: 220 x 120 mm
Technology: 100% THT
Relays: HKE SIP-1A05
Bus Header: J_CLACK_STACK

HOT-PLUGGABLE SLICE

CLACK-BUS 40-PIN EUROCARD STACKING BACKPLANE

D0..D15 (Pins 1..16) • A0..A15 (Pins 17..32) • RW_n, STROBE, READY, RESET_n (Pins 33..36) • +5V, +3V3, +24V, GND (Pins 37..40)

MEMORY 01
32x32 Core Memory Plane
1,024 Ferrite Cores
Coincident-Current Matrix

Interface: 40-Pin CLACK-BUS
Supply: +5V / +3.3V / +24V
Zero-DRC / Zero-ERC Release

ACTIVE PRODUCTION PCB

MEMORY 02
Clack-Core-ROM Cartridge
Hand-Woven Rope ROM
Discrete Diode Matrix

Interface: 40-Pin CLACK-BUS
Supply: +5V / +3.3V / +24V
Zero-DRC / Zero-ERC Release

ACTIVE PRODUCTION PCB

SLICE 1
VGA & Sound Workstation
YM2149 Chiptune & VGA
640x480 Retro Console

Interface: 40-Pin CLACK-BUS
Supply: +5V / +3.3V / +24V
Zero-DRC / Zero-ERC Release

ACTIVE PRODUCTION PCB

SLICE 2
Industrial 24V I/O Dock
XMC4500 RTOS Mass Storage
Optocouplers & RS-485

Interface: 40-Pin CLACK-BUS
Supply: +5V / +3.3V / +24V
Zero-DRC / Zero-ERC Release

ACTIVE PRODUCTION PCB

SLICE 3
PDP-11 Frontpanel
Blinkenlights Console
Toggle Switches & LEDs

Interface: 40-Pin CLACK-BUS
Supply: +5V / +3.3V / +24V
Zero-DRC / Zero-ERC Release

ACTIVE PRODUCTION PCB

SLICE 5
Dual-Channel Scope Dock
XY Vector & Lissajous
DAC0808 & BNC Connectors

Interface: 40-Pin CLACK-BUS
Supply: +5V / +3.3V / +24V
Zero-DRC / Zero-ERC Release

ACTIVE PRODUCTION PCB

4-CORE QUAD MAINFRAME ARCHITECTURE & MULTI-TOWER EXPANSION

The system is designed with a fully modular architecture. Standard Eurocard 3U form factor and the 40-Pin CLACK-BUS enable parallel multi-core operation of up to 4 CPU cores (Core 0 to Core 3) in a Quad-Mainframe cluster. Scaling up to 16 cores is seamlessly supported via high-speed ribbon bridges across Eurocard backplanes (Pod 05) — true enterprise mainframe engineering.

16-BIT RELAY MAINFRAME (CLACK-MAINFRAME)
MASTER SYSTEM ARCHITECTURE & POD ECOSYSTEM

Architecture & Hardware Engineering: **Christian Buchhas • Antigravity** Original CPU Concept: Peter Prikasky (relaiscomputer.at)	Document No.: **CLACK-SYS-00**	
Standard & Specification: **Eurocard 3U • 40-Pin CLACK-BUS • relaycomputer.org**	Date: **2026-11-04**	Rev / Sheet: **v2.0 (1 / 1)**