



Always Moving Forward

MAKE THE CONSOLE YOU WANT

Premier ODM Services



Fitness Console Computing Integrated Solution



ODM/OEM Services



NEXCOM MCS Business Unit makes the difference by utilizing its industrial mobile computing experience to facilitate in the fitness industry, a highly talented engineer team, and by providing exceptional levels of Fitness Cardio Console Computing Design and Manufacturing services including:

- Superior ARM processor Cortex-A family hardware design
- Android/Linux OS porting service and GUI design by request
- Customized firmware and designed APIs to access and control low level IO for App design
- Support all SDK of Android/Linux BSP, optimizing and re-designing the drivers
- Extend Microchip (MCU) to handle power and related peripheral I/O
- Program rich multimedia source AV decoder (HDMI-IN/IPTV/ TV Tuner)
- Console system integration ready for 15.6"/21.5"/23.8"/32" display & touchscreen

Software Service Support

NEXCOM has provided Fitness Console Computing ODMs for over a decade. Our expertise and unique designed software solutions bring significant values to collaborate with customers seamlessly and shorten the product development cycle to deliver time-to-market.

GUI developer will access the designed APIs in app layer to communicate with I/O devices. Via simplified API commands, it can control I/O devices like HDMI-IN, CEC data transfer, drive system RPM, and E-stop. The following are the functional blocks and services we provide but not limited to:

Android	Broadcast/Event	The HAL layer, JNI layer, service layer, and broadcast/event layer mainly structure the entire Android internal system. Most of the APPs will transmit data and control through the APIs between layers. NEXCOM provides its unique FW modules design and functions; it allows modifying and providing APIs to facilitate the needs of new APP, which has achieved the functions efficiently by developers.
	Services	Moreover, NEXCOM optimizes the final Android system performance with all connected devices, customized APIs, supports MFI authentication, and Dolby certified.
	JNI	
	HAL	
Kernel	Input	HDMI-IN switch between various sources, resolution, and APIs
	Display	LVDS/Panel size auto-detect, image correction, and dual display support
	Audio	Hot plug detect, amplify control, manage dual in & output APIs for sound control
	Wireless	Wi-Fi/BT connectivity, stability fine-tuned, and API
	Streaming	Ethernet IPTV streaming performance
	Performance	Optimize GPU and CPU performance and stability via tuning power voltage of PMIC
	Storage	eMMC/SD, SPI/I2C data packet performance and stability
Bootloader	Boot	Load Linux Kernel, Android system and customize data transfer
	Allocation	Initiate CPU and I/O power, allocate Register and memory fine-tuned
	Optimization	Optimize and reduce boot time
	Recovery	Recovery request from MCU and refresh comments
MCU Firmware	UART/I2C/SPI/GPIO Bus	Provide APIs to control the connected devices - fan, buzzer, HR, and driver system
	Power Management	Control power on each peripheral of fitness equipment to reach ErP standby power criteria IEC62301, minimize power in microwatt level
	Safety Key Control	Bi-direct design to receive/transfer via RS485
	Watchdog	Monitor the main system alive status, re-boot when necessary
	Recovery	Provide a recovery mechanism after the process fail to re-boot 3 times

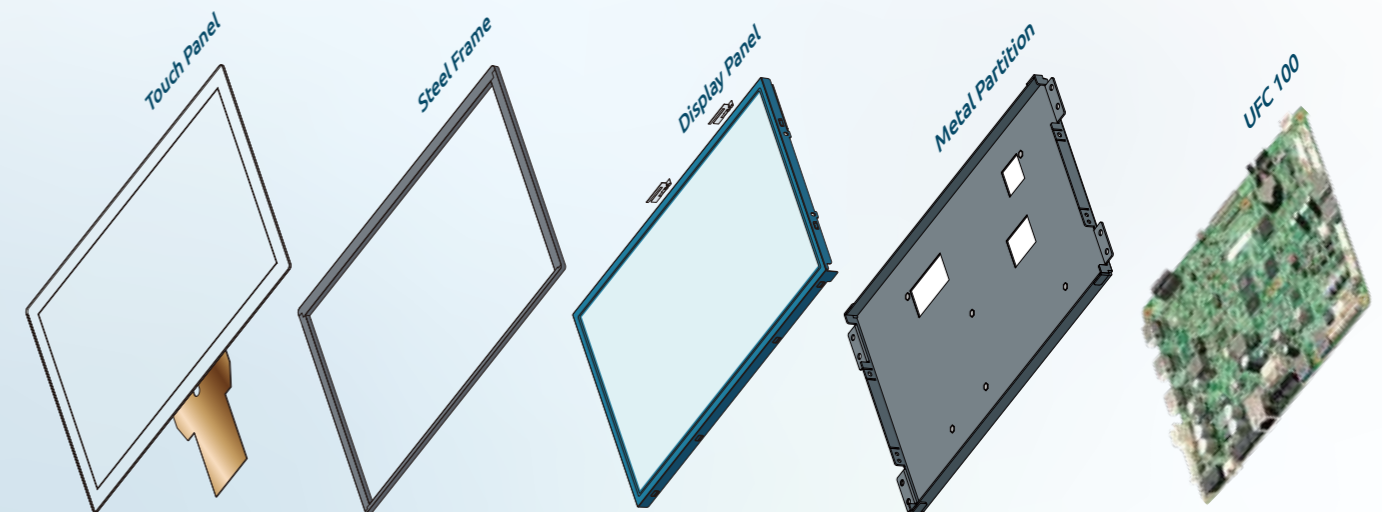
Fitness Console Controller

Product Overview

The UFC 100 is designed specifically for use as a fitness console engine. It is powered by NXP i.MX8MQ Cortex®-A53 quad-core processor with a clock speed of 1.5GHz, providing exceptional processing power, audio & video decoding capabilities required for fitness applications to manage complex media sources and all connected devices.

Some of its key I/O features for connecting fitness peripherals included ten UART ports, safety key, several USB ports for OTG and USB 3.0 5V/2.1A charging ready for MFI; dual-display support through HDMI-OUT 2.0 and LVDS, with resolutions up to 1920 x 1080; audio plug detect, two stereo output, and two HDMI-IN for media sources. It's also enabled the expandable features by add-on modules such as Wi-Fi/BT connectivity, Qi wireless charging, NFC, ANT+, and TV tuner modules.

NEXCOM provides a comprehensive range of services, including mechanical design, final console system integration, pre-installed OS & GUI, and function validation for sheet metal frames that incorporate industrial-grade LCDs and touchscreens ranging in size from 16 to 32 inches. Customers can select the option of optical bonding, which increases durability, reduces glare, and eliminates condensation. Our streamlined stack-up mechanical design for the UFC 100 Console Controller simplifies the integration process, making it easier to package the panel touch computing system into a customer-defined enclosure. This design also reduces maintenance costs by providing easy access to each peripheral. The UFC 100 is custom-made for fitness equipment developers looking to build GUI and application software effectively.



Specifications

CPU	NXP i.MX 8M Quad processor with 1.5 GHz frequency	1 x FAN connector (12V)
Memory	LPDDR4 3GB	1 x Safety key connector
Storage	eMMC 32GB	1 x Qi 12V connector
Display Interface	LVDS dual channel	2 x HDMI-IN 1.4
Ethernet	1 x RJ45 Gigabit LAN with LED	1 x Recovery button
Wireless	Wi-Fi 802.11 a/b/g/n/ac	2 x I2C
USB Port	Bluetooth 5.0	10 x UART port
Audio	1 x OTG USB 2.0 Micro USB (data only)	1 x Power connector
Other I/O Connector	1 x USB 3.0 Type A (5VDC/2.1A)	2 x Head phone connector
	3 x USB 3.0 Type A (5VDC/1A)	1 x M.2 2230 for Wi-Fi/BT (SDIO 3.0)
	1 x USB 2.0 pin header	Operating temperature: 0°C ~ 60°C
	2 x Stereo outputs and plug detect	Storage temperature: -20°C ~ 70°C
	32Ohm, 40mw, 5V Max load	Operating humidity: 10%~90% relative humidity, non-condensing
	1 x Micro SD slot	Power Requirement
	1 x Speaker connector	DC 12V Power input
		Software Support
		Yocto 3.0, Ubuntu20.04, Android Version 9.1 or above
		Display Size
		15.6", 21.5", 23.8", 32" TFT LCD
		Resolution
		1366 x 768, up to 1920 x 1080

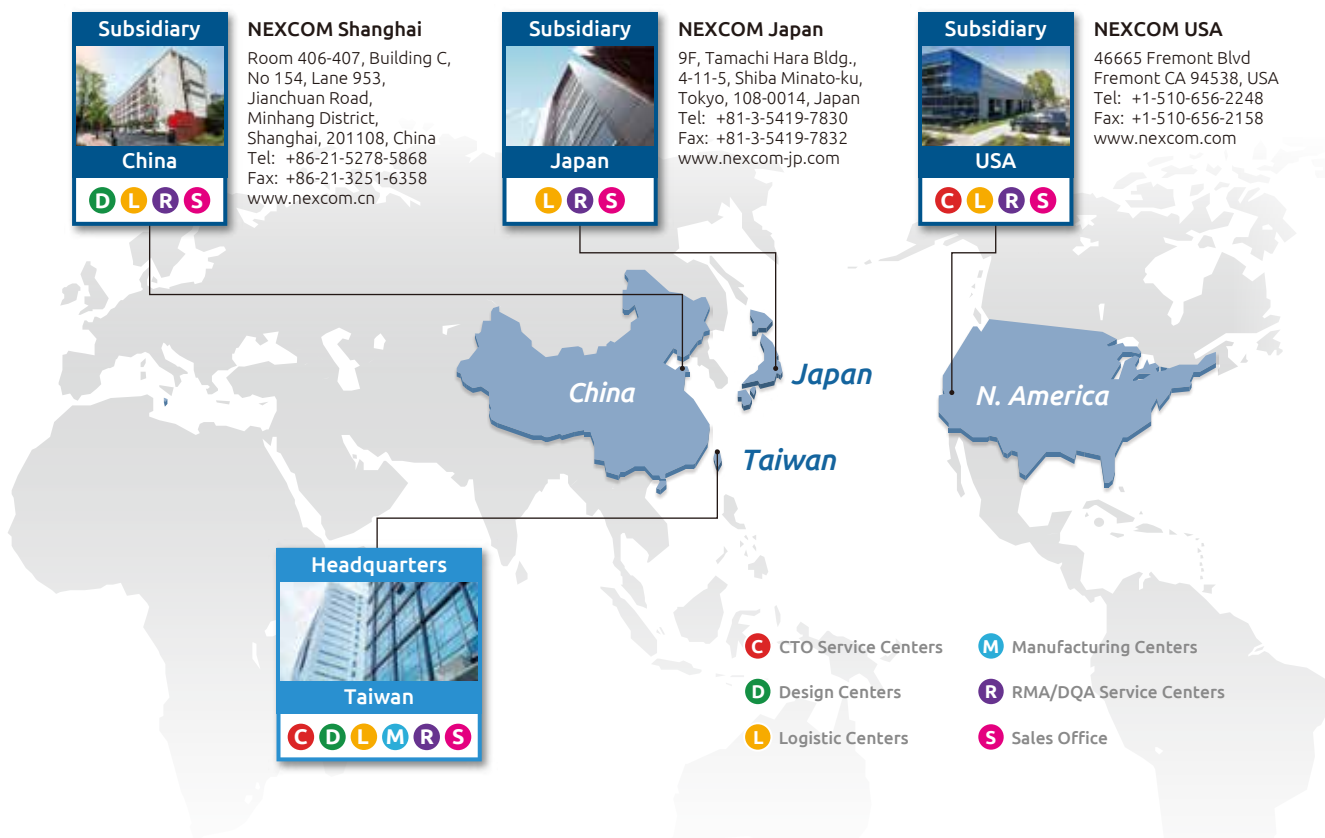
ABOUT NEXCOM

Founded in 1992 and headquartered in Taipei, Taiwan, NEXCOM is a publicly listed company dedicated to being a reliable partner in the development of intelligent solutions for various industrial vertical markets. With a service-to-market business model, NEXCOM possesses the core competency to create a strong global service network by offering customized design, worldwide logistics, and real-time support. The company has the ability to design and manufacture products in-house, ensuring that quality

is not compromised in their application-driven product lines and services.

Committed to deliver core values to customers, NEXCOM values its capabilities from Six Business Units to target rapidly expanding vertical markets. Each BU has been established to build its products portfolio, serve industrial solutions, and also key accounts that require ODMs.

IAS	IoT Automation Solutions: Industrial Automation & I4.0 Execution, Intelligent Edge, Gateway & EWR, Industrial Robot Control, EtherCAT Motion Solutions, Wireless & Embedded Solutions For Industrial IoT
IDS	Intelligent Video Surveillance: IP Video Surveillance Cameras, Mobile Cameras, ANPR/LPR Network Cameras, Panoramic Cameras, NVR Server Platform
IPS	Intelligent Platform @ Smart City: Smart City, Smart Retail, Digital Signage, Interactive Kiosks, Hospitality, Gateway, Edge AI, and ODM Customization Services
MCS	Mobile Computing Solutions: Fitness Console, Edge AI Telematics Computer, Vehicle Telematics Computer, Railway Computer, Vehicle Mount Computer, Vehicle Mount Display, In-Vehicle Networking, In-Vehicle HDMI Extender over IP
MHI	Medical and Healthcare Informatics: Total Solutions with a Variety of Medical IT Systems
NCS	Network and Communication Solutions: Cyber Security, HPC, Telecommunications, Storage, SDN/NFV, 5G, uCPE, ICS Security



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