JT20
Multimedia Player

Specifications

Change History

Document Version	Release Date	Description
V1.0.3	2023-12-15	• Updated the feature descriptions. • Updated the connector descriptions. • Updated the specifications.
V1.0.2	2023-06-14	• Updated the packing information. • Added the gross weight of the product.
V1.0.0	2021-07-05	First release

Introduction

The JT20, launched by NovaStar, is a multimedia player that integrates sending and receiving capabilities. This multimedia player is designed for the traffic field. It can easily enable cross-region clustered management of screens by working with PC or various third-party client platforms.

The JT20 comes with eight standard HUB75E connectors for communication and supports up to 16 groups of parallel RGB data. On-site setup, operation and maintenance are all taken into account when the hardware and software of the JT20 were designed, allowing for an easier setup, more stable operation and more efficient maintenance.

Thanks to its stable and secure integrated design, the JT20 saves space, simplifies cabling, and is ideal for the applications requiring small loading capacity, such as digital signage in cities and expressways, intelligent parking systems, and queen management systems.

Features

- Loading capacity of a single card up to 512×384 pixels
  - Maximum pixel width: 1280 (1280×128)
  - Maximum pixel height: 512 (384×512)
- 1x Stereo audio output
- 1x USB 2.0 port

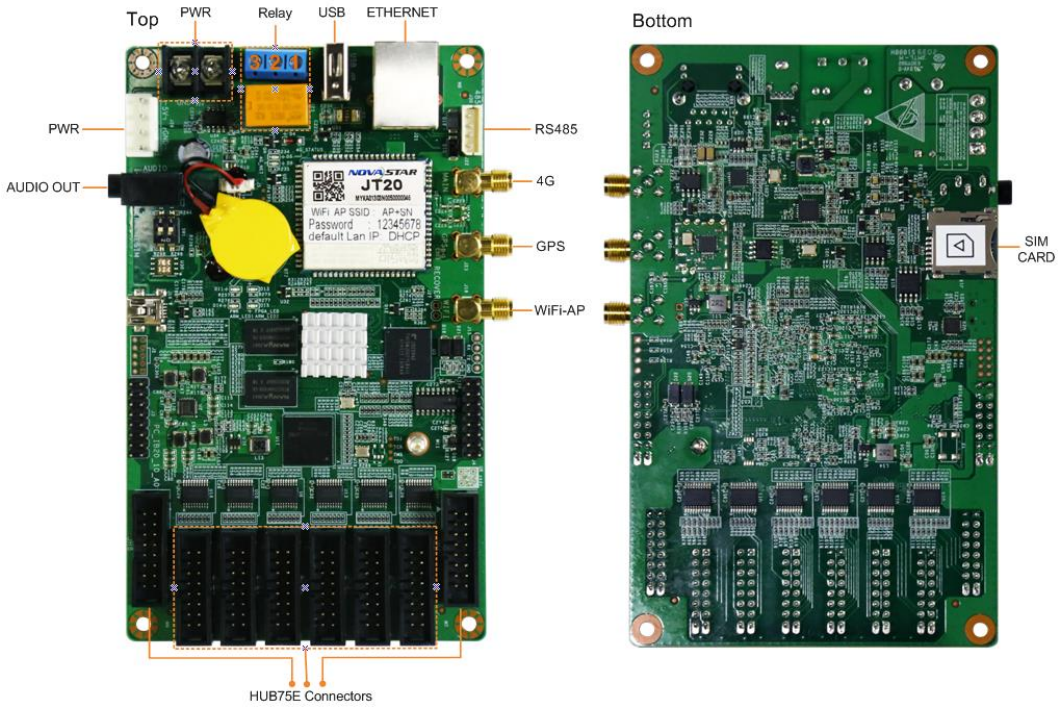
  Allows for firmware upgrade only.
- 1x RS485 connector

  Connects to a sensor such as light sensor, or connects to a module to implement corresponding functions.
- Powerful processing capability
  - 4 core 1.2 GHz processor
  - Hardware decoding of 1080p videos
  - 1 GB of RAM
  - 8 GB of internal storage (4 GB available)
- Remote content publishing and screen control
- Built-in Wi-Fi AP

  User terminal devices can connect to the built-in Wi-Fi AP of the JT20. The default SSID is "AP+*Last 8 digits of SN*" and the default password is printed on the SSID label of the product.
- Ships with a 4G module

  Currently, the 4G network can be accessed in China only.
- Support for GPS
- Support for relays (maximum DC 30 V 3 A)

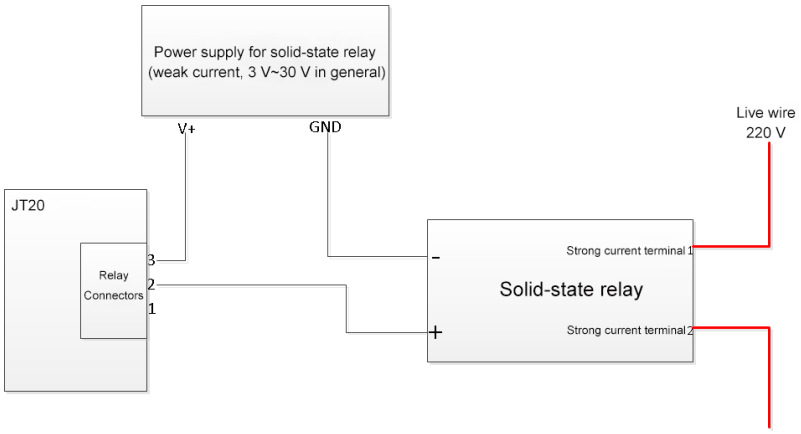
Appearance



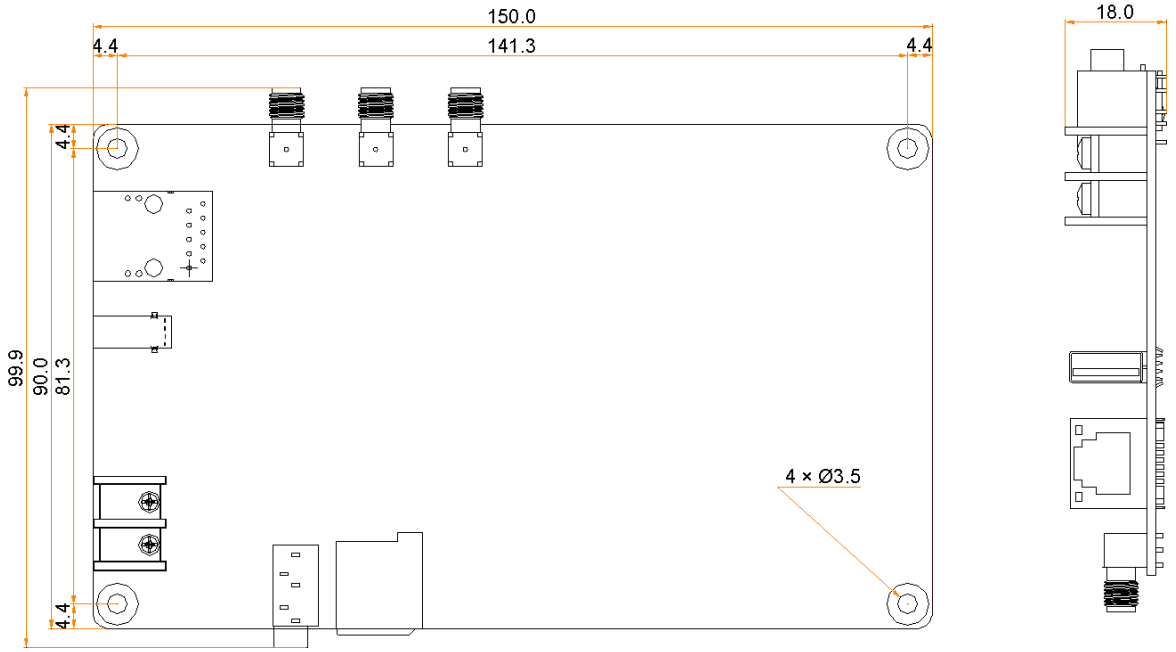
All product pictures shown in this document are for illustration purpose only. Actual product may vary.

Table 1-1 Connectors and buttons

Name	Description
ETHERNET	Connects to a network or the control PC.
USB	1x USB 2.0 port Allows for firmware upgrade only.
PWR	Power input connector
AUDIO OUT	Audio output connector
HUB75E connectors	Connects to a screen.
SIM CARD	SIM card slot
WiFi-AP	Wi-Fi antenna connector
GPS	GPS antenna connector
4G	4G antenna connector
RS485	Connects to a sensor such as light sensor, or connects to a module to implement corresponding functions.
Relay	3-pin relay control switch DC: Maximum voltage and current: 30 V, 3 A AC: Maximum voltage and current: 250 V, 3 A Two connection methods: Common switch: The connection method of pins 2 and 3 is not fixed. Pin 1 is not connected to the wire. On the power control page of ViPlex Express, turn on the

Name	Description
	circuit to connect pin 2 to pin 3, and turn off the circuit to disconnect pin 2 from pin 3. Single pole double throw switch: The connection method is fixed. Connect pin 2 to the pole. Connect pin 1 to the turn-off wire and pin 3 to turn-on wire. On the power control page of ViPlex Express, turn on the circuit to connect pin 2 to pin 3 and disconnect pin 1 form pin 2, or turn off the circuit to disconnect pin 3 from pin 2 and connect pin 2 to pin 1. Note: The JT20 uses DC power supply. Using the relay to directly control AC is not recommended. If it is required to control AC, the following connection method is recommended. 

Dimensions



Tolerance: ±0.1 Unit: mm

Note:

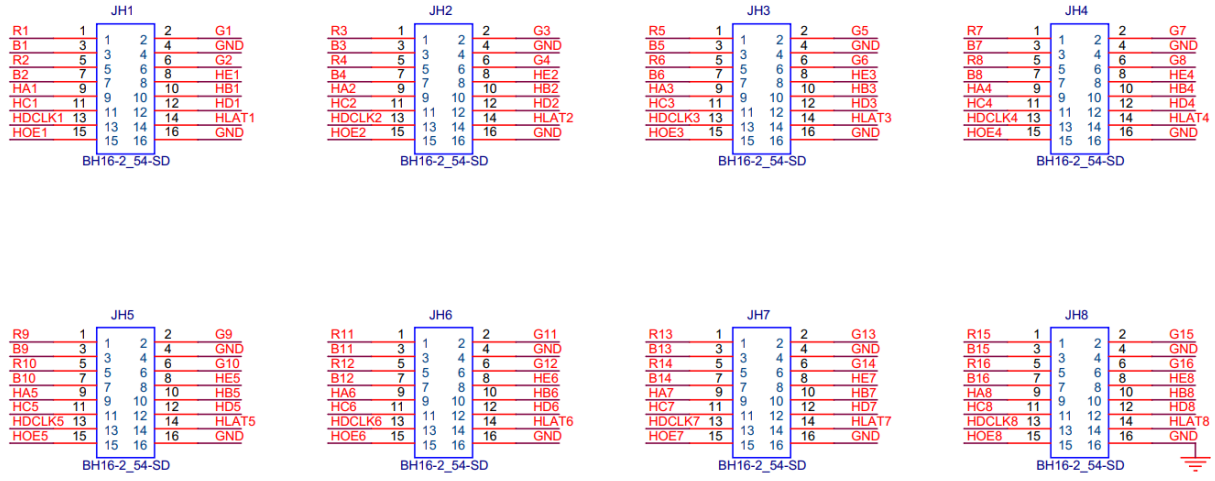
The product dimension drawings cannot be used as references to make molds or trepan mounting holes. Please ask the business personnel of NovaStar for the structural drawings if needed.

Specifications

Maximum Loading Capacity	512×384 pixels	
Electrical Parameters	Input voltage	DC 4.5 V~5.5 V
	Maximum power consumption	10 W
Storage Space	RAM	1 GB
	Internal storage	8 GB (4 GB available)
Storage Environment	Temperature	–40ºC to +80ºC
	Humidity	0% RH to 80% RH, non-condensing
Operating Environment	Temperature	–20ºC to +60ºC
	Humidity	0% RH to 80% RH, non-condensing
Packing Information	Dimensions (L×W×H)	278 mm × 218 mm × 63 mm
	List	• 1x JT20 • 1x Omnidirectional Wi-Fi antenna • 1x 4G antenna • 1x Packing List
Physical Specifications	Dimensions (L×W×H)	150.0 mm × 99.9 mm × 18.0 mm
	Net weight	121.3 g
	Gross weight	300.0 g
System Software	• Android operating system software • Android terminal application software • FPGA program	

The amount of power consumption may vary depending on various factors such as product settings, usage, and environment.

Pin Definition



JH1–JH8					
/	R	1	2	G	/
/	B	3	4	GND	Ground
/	R	5	6	G	/
/	B	7	8	HE	Line decoding signal
Line decoding signal	HA	9	10	HB	
	HC	11	12	HD	
Shift clock	HDCLK	13	14	HLAT	Latch signal
Display enable	HOE	15	16	GND	Ground

Audio and Video Decoder Specifications

Image

Item	Codec	Supported Image Size	Container	Remarks
JPEG	JFIF file format 1.02	48×48 pixels~8176×8176 pixels	JPG, JPEG	No support for non-interlaced scan Support for SRGB JPEG Support for Adobe RGB JPEG
BMP	BMP	No restriction	BMP	N/A
GIF	GIF	No restriction	GIF	N/A
PNG	PNG	No restriction	PNG	N/A
WEBP	WEBP	No restriction	WEBP	N/A

Audio

Item	Codec	Channel	Bit Rate	Sampling Rate	File Format	Remarks
MPEG	MPEG1/2/2.5 Audio Layer1/2/3	2	8kbps~320Kbps, CBR and VBR	8kHz~48kHz	MP1, MP2, MP3	N/A
Windows Media Audio	WMA Version 4/4.1/7/8/9, wmapro	2	8kbps~320Kbps	8kHz~48kHz	WMA	No support for WMA Pro, lossless codec and MBR
WAV	MS-ADPCM, IMA-ADPCM, PCM	2	N/A	8kHz~48kHz	WAV	Support for 4bit MS-ADPCM and IMA-ADPCM
OGG	Q1~Q10	2	N/A	8kHz~48kHz	OGG, OGA	N/A
FLAC	Compress Level 0~8	2	N/A	8kHz~48kHz	FLAC	N/A
AAC	ADIF, ATDS Header	5.1	N/A	8kHz~48kHz	AAC, M4A	N/A

Item	Codec	Channel	Bit Rate	Sampling Rate	File Format	Remarks
	AAC-LC and AAC-HE, AAC-ELD					
AMR	AMR-NB, AMR-WB	1	AMR-NB 4.75~12.2Kbps@8kHz AMR-WB 6.60~23.85Kbps@16kHz	8kHz, 16kHz	3GP	N/A
MIDI	MIDI Type 0/1, DLS version 1/2, XMF and Mobile XMF, RTTTL/RTX, OTA, iMelody	2	N/A	N/A	XMF, MXMF, RTTTL, RTX, OTA, IMY	N/A

Video

Type	Codec	Resolution	Maximum Frame Rate	Maximum Bit Rate (Under Ideal Conditions)	Type	Codec
MPEG-1/2	MPEG-1/2	48×48 pixels ~ 1920×1080 pixels	30fps	80Mbps	DAT, MPG, VOB, TS	Support for Field Coding
MPEG-4	MPEG4	48×48 pixels ~ 1920×1080 pixels	30fps	38.4Mbps	AVI, MKV, MP4, MOV, 3GP	No support for MS MPEG4 v1/v2/v3, GMC, DivX3/4/5/6/7 …/10
H.264/AVC	H.264	48×48 pixels ~ 1920×1080 pixels	1080P@60fps	57.2Mbps	AVI, MKV, MP4, MOV, 3GP, TS, FLV	Support for Field Coding, MBAFF
MVC	H.264 MVC	48×48 pixels ~ 1920×1080 pixels	60fps	38.4Mbps	MKV, TS	Support for Stereo High Profile only
H.265/HEVC	H.265/ HEVC	64×64 pixels ~ 1920×1080 pixels	1080P@60fps	57.2Mbps	MKV, MP4, MOV, TS	Support for Main Profile, Tile & Slice
GOOGLE VP8	VP8	48×48 pixels ~ 1920×1080 pixels	30fps	38.4 Mbps	WEBM, MKV	N/A
H.263	H.263	SQCIF (128×96), QCIF (176×144), CIF (352×288), 4CIF (704×576)	30fps	38.4Mbps	3GP, MOV, MP4	No support for H.263+
VC-1	VC-1	48×48 pixels ~ 1920×1080	30fps	45Mbps	WMV, ASF, TS,	N/A

Type	Codec	Resolution	Maximum Frame Rate	Maximum Bit Rate (Under Ideal Conditions)	Type	Codec
		pixels			MKV, AVI	
MOTION JPEG	MJPEG	48×48 pixels ~ 1920×1080 pixels	30fps	38.4Mbps	AVI	N/A

Note: The output data format is YUV420 semi-planar, and YUV400 (monochrome) is also supported by H.264.

Trademark

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Statement

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