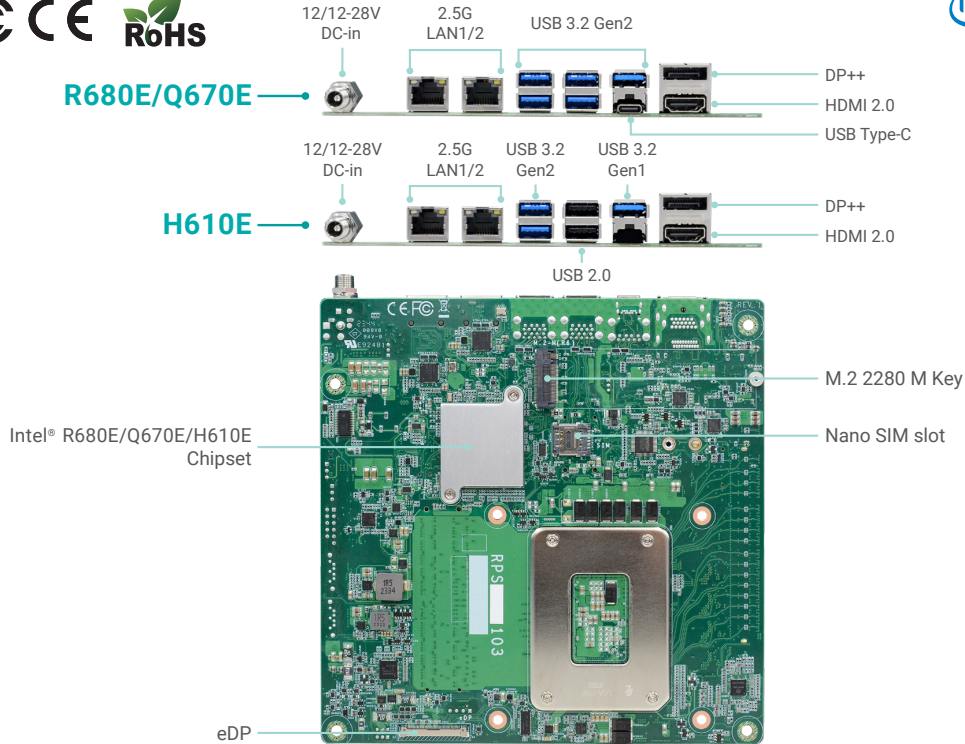
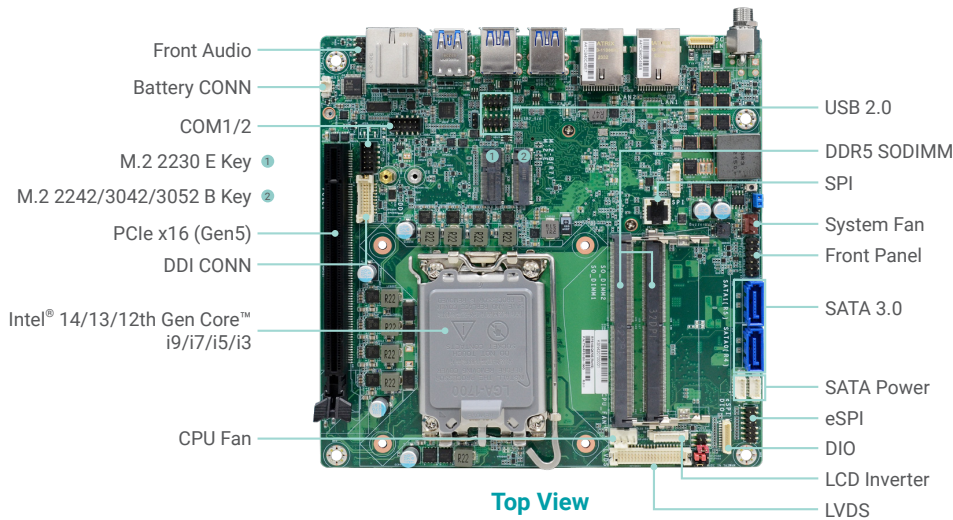


RPS101/RPS103

14/13/12th Gen Intel® Core™
Thin Mini-ITX



Bottom View



Top View

KEY FEATURES



DDR5

2 DDR5 5600MHz SODIMM up to 64GB



4K High Resolution

Supports up to 4K resolution



Quad Displays

1 DP++, 1 HDMI, 1 USB Type C, 1 LVDS/eDP, 1 DFI display extension port (DP/HDMI/VGA available)



Multiple Expansion

1 PCIe x16, 1 M.2 E Key, 1 M.2 M Key, 1 M.2 B Key

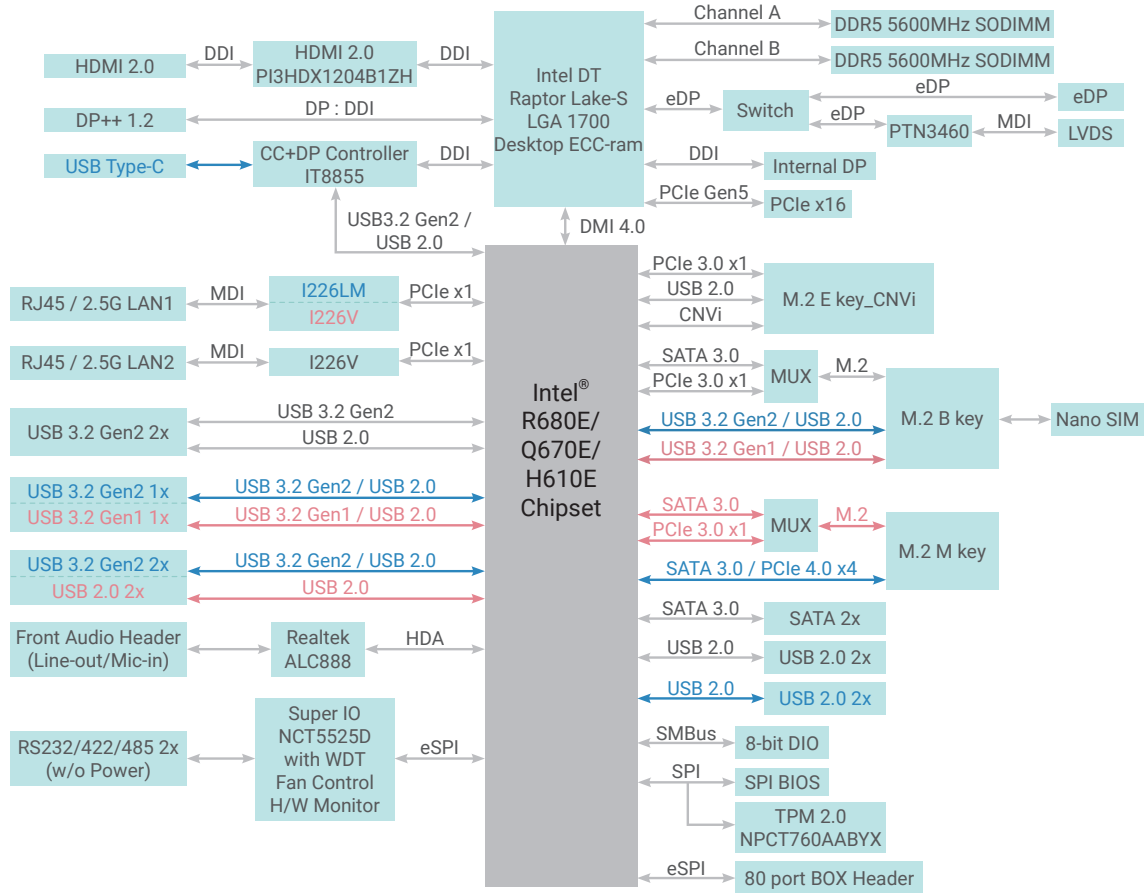


Rich I/O

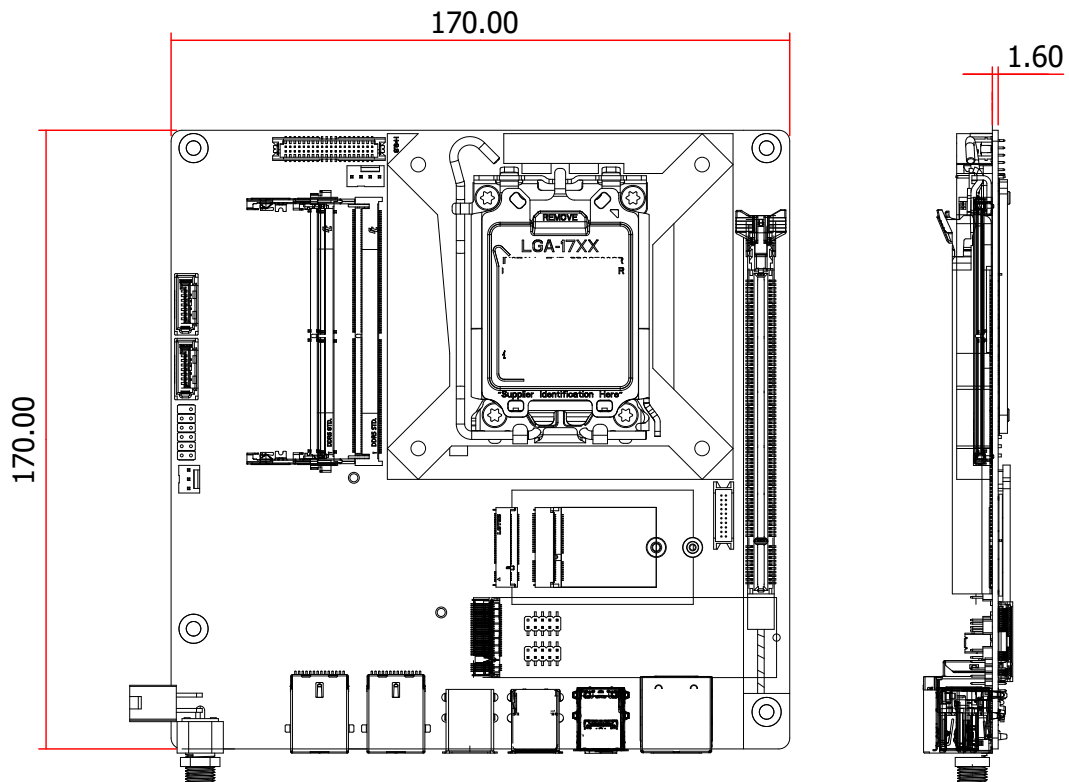
2 Intel 2.5GbE, 2 COM, 6 USB 3.2 Gen2, 4 USB 2.0, 2 SATA 3.0

BLOCK DIAGRAM

— R680E/Q670E Only
— H610E Only



MECHANICAL DRAWING



SPECIFICATION

SYSTEM	Processor	<p>14th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W</p> <p>Intel® Core™ i9-14900 (24 Cores, 36M Cache, up to 5.8 GHz); 65W Intel® Core™ i9-14900T (24 Cores, 36M Cache, up to 5.5 GHz); 35W Intel® Core™ i7-14700 (20 Cores, 33M Cache, up to 5.4 GHz); 65W Intel® Core™ i7-14700T (20 Cores, 33M Cache, up to 5.2 GHz); 35W Intel® Core™ i5-14500 (14 Cores, 24M Cache, up to 5.0 GHz); 65W Intel® Core™ i5-14500T (14 Cores, 24M Cache, up to 4.8 GHz); 35W Intel® Core™ i5-14400 (10 Cores, 20M Cache, up to 4.7 GHz); 65W Intel® Core™ i5-14400T (10 Cores, 20M Cache, up to 4.5 GHz); 35W Intel® Core™ i3-14100 (4 Cores, 12M Cache, up to 4.7 GHz); 60W Intel® Core™ i3-14100T (4 Cores, 12M Cache, up to 4.4 GHz); 35W Intel® Core™ 300 (2 Cores, 6M Cache, 3.9 GHz); 46W Intel® Core™ 300T (2 Cores, 4M Cache, 3.4 GHz); 35W</p> <p>13th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W</p> <p>Intel® Core™ i9-13900E (24 Cores, 36M Cache, up to 5.2 GHz); 65W Intel® Core™ i9-13900TE (24 Cores, 36M Cache, up to 5.0 GHz); 65W Intel® Core™ i9-13900 (24 Cores, 36M Cache, up to 5.6 GHz); 65W Intel® Core™ i7-13700E (16 Cores, 30M Cache, up to 5.1 GHz); 65W Intel® Core™ i7-13700TE (16 Cores, 30M Cache, up to 4.8 GHz); 35W Intel® Core™ i7-13700 (16 Cores, 30M Cache, up to 5.2 GHz); 65W Intel® Core™ i7-13700T (16 Cores, 30M Cache, up to 4.9 GHz); 35W Intel® Core™ i5-13500E (14 Cores, 24M Cache, up to 4.6 GHz); 65W Intel® Core™ i5-13500TE (14 Cores, 24M Cache, up to 4.5 GHz); 35W Intel® Core™ i5-13500 (14 Cores, 24M Cache, up to 4.8 GHz); 65W Intel® Core™ i5-13500T (14 Cores, 24M Cache, up to 4.6 GHz); 35W Intel® Core™ i5-13400E (10 Cores, 20M Cache, up to 4.6 GHz); 65W Intel® Core™ i5-13400 (10 Cores, 20M Cache, up to 4.6 GHz); 65W Intel® Core™ i3-13100E (4 Cores, 12M Cache, up to 4.4 GHz); 65W Intel® Core™ i3-13100TE (4 Cores, 12M Cache, up to 4.1 GHz); 35W Intel® Core™ i3-13100 (4 Cores, 12M Cache, up to 4.5 GHz); 65W Intel® Core™ i3-13100T (4 Cores, 12M Cache, up to 4.2 GHz); 35W Intel® G7400E (2 Cores, 6M Cache, 3.6 GHz); 46W Intel® G7400TE (2 Cores, 6M Cache, 3.0 GHz); 35W Intel® G6900E (2 Cores, 4M Cache, 3.0 GHz); 46W Intel® G6900TE (2 Cores, 4M Cache, 2.4 GHz); 35W</p> <p>12th Generation Intel® LGA 1700 Socket Processors, TDP support up to 65W</p> <p>Intel® Core™ i9-12900E (16 Cores, 30M Cache, up to 5.0 GHz); 65W Intel® Core™ i9-12900TE (16 Cores, 30M Cache, up to 4.8 GHz); 35W Intel® Core™ i9-12900 (16 Cores, 30M Cache, up to 5.0 GHz); 65W Intel® Core™ i7-12700E (12 Cores, 25M Cache, up to 4.8 GHz); 65W Intel® Core™ i7-12700TE (12 Cores, 25M Cache, up to 4.7 GHz); 35W Intel® Core™ i7-12700 (12 Cores, 25M Cache, up to 4.8 GHz); 65W Intel® Core™ i5-12500E (6 Cores, 18M Cache, up to 4.5 GHz); 65W Intel® Core™ i5-12500TE (6 Cores, 18M Cache, up to 4.3 GHz); 35W Intel® Core™ i5-12500 (6 Cores, 18M Cache, up to 4.6 GHz); 65W Intel® Core™ i5-12400 (6 Cores, 18M Cache, up to 4.4 GHz); 65W Intel® Core™ i3-12100E (4 Cores, 12M Cache, up to 4.2 GHz); 60W Intel® Core™ i3-12100TE (4 Cores, 12M Cache, up to 4.0 GHz); 35W Intel® Core™ i3-12100 (4 Cores, 12M Cache, up to 4.3 GHz); 60W Intel® G7400E (2 Cores, 6M Cache, 3.6 GHz); 46W Intel® G7400TE (2 Cores, 6M Cache, 3.0 GHz); 35W Intel® G6900E (2 Cores, 4M Cache, 3.0 GHz); 46W Intel® G6900TE (2 Cores, 4M Cache, 2.4 GHz); 35W</p>			
	Chipset	Intel® R680E/Q670E/H610E Chipset			
	Memory	Two 262-pin SODIMM up to 64GB Dual Channel DDR5 5600 MHz (ECC support: R680E only)			
	BIOS	AMI SPI 256Mbit			
	GRAPHICS	Controller	Intel® UHD Graphics 700 series		
	Feature	<p>3D graphics HW acceleration:DX12, Open GL 4.6, Vulkan 1.2</p> <table border="1"> <tr> <td>HW Video Decode: 8K60 12b 4:2:0 HEVC/VP9/SCC 8K30 10b 4:2:0 AV1 5K60 10b 4:4:4 HEVC/VP9/SCC 4K60 8b 4:2:0 AVC</td> <td>HW Video Encode: 8K30 or 5K60 8b/10b 4:2:0 HEVC/VP9/SCC 4K60 10b 4:4:4 HEVC/VP9/SCC 4K60 8b 4:2:0 AVC</td> </tr> </table>		HW Video Decode: 8K60 12b 4:2:0 HEVC/VP9/SCC 8K30 10b 4:2:0 AV1 5K60 10b 4:4:4 HEVC/VP9/SCC 4K60 8b 4:2:0 AVC	HW Video Encode: 8K30 or 5K60 8b/10b 4:2:0 HEVC/VP9/SCC 4K60 10b 4:4:4 HEVC/VP9/SCC 4K60 8b 4:2:0 AVC
HW Video Decode: 8K60 12b 4:2:0 HEVC/VP9/SCC 8K30 10b 4:2:0 AV1 5K60 10b 4:4:4 HEVC/VP9/SCC 4K60 8b 4:2:0 AVC	HW Video Encode: 8K30 or 5K60 8b/10b 4:2:0 HEVC/VP9/SCC 4K60 10b 4:4:4 HEVC/VP9/SCC 4K60 8b 4:2:0 AVC				
	Display	<p>1 x HDMI 2.0 1 x DP++ 1.2 1 x USB Type-C(H610E not support) 1 x eDP/LVDS 1 x DFI display extension port (DP/HDMI/VGA available)</p> <p>HDMI: resolution up to 4096x2160 @ 60Hz DP++: resolution up to 4096x2304 @ 60Hz USB Type C: resolution up to 4096x2304 @ 60Hz eDP: resolution up to 4096x2160 @ 60Hz LVDS: resolution up to 1920x1200 @ 60Hz</p>			
	Quad Displays	DP++ + HDMI + LVDS/eDP +USB Type C +DFI display extension port (DP/HDMI/VGA available)			

SPECIFICATION

EXPANSION	Interface	1 x PCIe x16 (Gen 5) (Max. 75W) 1 x M.2 2230 E Key (USB 2.0x1/CNVix1/PCIe3.0 x1)	
		R680E/Q670E: 1 x M.2 2242/3042/3052 B Key (PCIe 3.0 x1/SATA 3.0x1/USB 3.2 Gen2x1/USB 2.0x1) 1 x M.2 2280 M Key (PCIe 4.0x4 or SATA 3.0x1) H610E: 1 x M.2 2242/3042/3052 B Key (PCIe 3.0x1/SATA3.0x1/USB 3.2 Gen1x1/USB 2.0x1) 1 x M.2 2280 M Key (PCIe 3.0x1/SATA3.0x1)	
AUDIO	Audio Codec	Realtek ALC888	
ETHERNET	Controller	1 x Intel® I226-LM (Core i9/i7/i5 support iAMT) 1 x Intel® I226-V 2 x Intel® I226-V (only H610E support)	
REAR I/O	Ethernet	2 x 2.5GbE (RJ-45)	
	USB	R680E/Q670E: 5 x USB 3.2 Gen 2 Type A 1 x USB 3.2 Gen 2 USB Type C	H610E: 2 x USB 3.2 Gen 2 1 x USB 3.2 Gen 1 2 x USB 2.0
	Display	1 x HDMI 2.0 1 x DP++ 1.2 1 x USB Type-C(H610E not support)	
INTERNAL I/O	Serial	2 x RS-232/422/485 (w/o Power) Box header (2.0mm pitch)	
	USB	R680E/Q670E: 4 x USB 2.0 (2 2x5 2.0mm pitch header)	H610E: 2 x USB 2.0 (1 2x5 2.0mm pitch header)
	Display	1 x eDP/LVDS 1 x DFI display extension port (DP/HDMI/VGA available)	
	Audio	1 x Front Audio Header (1 x Line-out, 1 x Mic-in)	
	SATA	2 x SATA 3.0 (up to 6Gb/s) 2 x SATA Power RAID 0/1/5/10 (w/ M.2 Key-M/B slot + 2 SATA Conn.)	
	SMBus	1 x SMBus	
	DIO	1 x 8-bit DIO	
WATCHDOG TIMER	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds	
SECURITY	TPM	Nuvoton TPM 2.0	
POWER	Type	Single 12V +/-10% DC (RPS101)	Wide Range 12~28V (RPS103)
	Connector	DC-in Jack Right Angle Connector (4-pin) (available upon request) Straight Type Connector (4-pin) (available upon request)	
	Consumption	Idle: i9-13900E 65W: 12V @ 8.5A (102W) Max: i9-13900E 65W: 12V @14.1A (169.2W) Idle: i9-14900E 65W: 12V @ 4.2A (50.4W) Max: i9-14900E 65W: 12V @ 13.8A (165.6W)	
	RTC Battery	CR2032 Coin Cell	
OS SUPPORT	Microsoft	Windows 10 IoT Enterprise 64-bit Windows 11 Enterprise	
	Linux	Linux	
ENVIRONMENT	Temperature	Operating: -5 to 65°C	Storage: -40 to 85°C
	Humidity	Operating: 5 to 90% RH	Storage: 5 to 90% RH
	MTBF	TBD	
MECHANISM	Dimensions	Mini-ITX Form Factor	170mm (6.7") x 170mm (6.7")
	Height	Top Side:19mm Bottom Side: 4.5mm	
STANDARDS AND CERTIFICATION	Certifications	CE, FCC Class B, RoHS	

ORDERING INFORMATION

Model Name	P/N	Description
RPS101-R680E	770-RPS1011-000G	RPS101-R680E, 2 DDR5, Rear I/O (1DP++, 1 HDMI, 2 LAN, 5 USB 3.2, 1 USB Type C), Internal I/O (M.2 M/B/E Key, 2 RS232/422/485, 2 SATA, 4 USB 2.0), dTPM, 12V DC-Jack, -5°C ~ 65°C
RPS101-Q670E	770-RPS1011-100G	RPS101-Q670E, 2 DDR5, Rear I/O (1DP++, 1 HDMI, 2 LAN, 5 USB 3.2, 1 USB Type C), Internal I/O (M.2 M/B/E Key, 2 RS232/422/485, 2 SATA, 4 USB 2.0), dTPM, 12V DC-Jack, -5°C ~ 65°C
RPS101-H610E	770-RPS1011-200G	RPS101-H610E, 2 DDR5, Rear I/O (1DP++, 1 HDMI, 2 LAN, 3 USB 3.2, 2 USB 2.0), Internal I/O (M.2 M/B/E Key, 2 RS232/422/485, 2 SATA, 4 USB 2.0), dTPM, 12V DC-Jack, -5°C ~ 65°C
RPS103-R680E	770-RPS1031-000G	RPS103-R680E, 2 DDR5, Rear I/O (1DP++, 1 HDMI, 2 LAN, 5 USB 3.2, 1 USB Type C), Internal I/O (M.2 M/B/E Key, 2 RS232/422/485, 2 SATA, 4 USB 2.0), dTPM, 12~28V DC-Jack, -5°C ~ 65°C
RPS103-Q670E	770-RPS1031-100G	RPS103-Q670E, 2 DDR5, Rear I/O (1DP++, 1 HDMI, 2 LAN, 5 USB 3.2, 1 USB Type C), Internal I/O (M.2 M/B/E Key, 2 RS232/422/485, 2 SATA, 4 USB 2.0), dTPM, 12~28V DC-Jack, -5°C ~ 65°C
RPS103-H610E	770-RPS1031-200G	RPS103-H610E, 2 DDR5, Rear I/O (1DP++, 1 HDMI, 2 LAN, 3 USB 3.2, 2 USB 2.0), Internal I/O (M.2 M/B/E Key, 2 RS232/422/485, 2 SATA, 4 USB 2.0), dTPM, 12~28V DC-Jack, -5°C ~ 65°C

PACKING LIST

1 RPS101/RPS103 motherboard	
1 Serial ATA data & power cable (Length: 300mm)	A81-002144-018G
1 COM port cable (Length: 250mm, 1 x COM port)	A81-015011-001G
1 I/O shield	
- w/ icon (2LAN/5USB)	A49-RPS101-000G

Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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