ICS 35.110
CCS L 79

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 41780.4-2025

Internet of things - Edge computing - Part 4: Node technical requirements

物联网 边缘计算 第4部分：节点技术要求

Issued on: October 5, 2025 **Implemented on: May 1, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

Table of Contents

Foreword

This document is in accordance with GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting is scheduled. This document is Part 4 of GB/T 41780 "Edge Computing for the Internet of Things". GB/T 41780 has already published the following parts.

1.General Requirements;

2.Data Management Requirements;

3.Node Interface Requirements;

4.Node Technical Requirements. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the National Information Technology Standardization Technical Committee (SAC/TC28). This document was drafted by: Inspur Electronic Information Industry Co., Ltd., Shenzhen Panyueliang Innovation Technology Co., Ltd., and China Electronics Technology Group Corporation. Standardization Research Institute, CESI (Shenzhen) Electronic Information Product Standardization Engineering Center Co., Ltd., University of Electronic Science and Technology of China, Wuxi Internet of Things Innovation Center Xin Technology Co., Ltd., Wuxi Internet of Things Industry Research Institute, Northwest Branch of Exploration and Development Research Institute of China National Petroleum Corporation, Huawei Technologies Technology Co., Ltd., Chongqing University of Posts and Telecommunications, Perception Chain (Wuxi) Technology Co., Ltd., Zhejiang Dahua Technology Co., Ltd., China Mobile (Hangzhou) Information Technology Co., Ltd. Information Technology Co., Ltd., China Southern Power Grid Co., Ltd. Ultra-High Voltage Transmission Company, Chongqing University of Posts and Telecommunications Industrial Internet Research Institute, Xi'an Aerospace Automation Co., Ltd., Tianjin Special Equipment Supervision and Inspection Technology Research Institute, Haier Technology Group Co., Ltd., Shenzhen Sanwang Communication Co., Ltd., Shenzhen Shuying Technology Co., Ltd., Chengdu Qinchuan Internet of Things Technology Co., Ltd., Suzhou Gebi Intelligent Technology Co., Ltd., Beijing Telecom Planning and Design Institute Co., Ltd., Zhejiang Lierda Internet of Things Technology Co., Ltd., Shaanxi Provincial Information Engineering Research Institute Research Institute, Hangzhou Hikvision Digital Technology Co., Ltd., China Electronics Science Popularization Technology Co., Ltd., Institute of Automation, Chinese Academy of Sciences Newland Digital Technology Co., Ltd., Rongke Lianchuang (Tianjin) Information Technology Co., Ltd., Shenzhen Deshengda Electronic Technology Co., Ltd. Shenzhen Zhiqu Technology Co., Ltd., Inspur Cloud Industrial Internet Co., Ltd., Beijing Dongtu Technology Co., Ltd., Shenzhen Xingyuan Zhi Energy Instrument Co., Ltd., Hangzhou Jingtang Communication Technology Co., Ltd., QiD Technology Group Co., Ltd., Guangzhou Anyue Information Technology Co., Ltd. company. The main drafters of this document are. Fu Changzhao, Wang Jingjing, Yang Hong, Gao Mingliang, Lu Lu, Su Jingru, Li Xiaoyu, Wu Mingjuan, Li Linjing, and Dong Jielian. Zhang Ting, Yao Gang, Kong Weisheng, Song Guixiang, Zhang Xueqin, Zhang Yan, Liang Yanju, Sun Yi, Fu Genli, Wu Zhonghua, Qian Weilin, Jia Jingrun, Wang Ning, Wang Dongliang Yang Wuyang, Wang Minghui, Pu Chenggen, Chen Huan, Zhou Juncheng, Zhou Peng, Yang Sa, Dai Congqi, Yang Guilin, Liu Jinliang, Zhang Xiangyang, Li Mohan, Shao Hanshu Cao Yijun, Wang Yawei, Li Chaoyue, Luo Xiaogang, Li Jiajing, Liu Jian, Zhang Wei, Liang Yongzeng, Sun Chuhu, Zhao Xiaorong, Wang Wen, Jia Ling, Ye Yang, Zhang Yong He Saike, Yu Yang, Zhu Keyi, Cai Chunshui, Du Cuifeng, Zhang Peijie, Chen Jiahong, Guo Jiangpu, Xiong

Yingsheng, Liu Zhenyu, Qi Guangpeng, Zhao Yifei, Cheng Yuan, Li Dong, Cheng Jun, Sun Jiakuan, Liang Jinghua.

GB/T 41780 "Internet of Things Edge Computing" specifies the general requirements, data management requirements, and node interfaces for Internet of Things edge computing. Requirements, node technology requirements, system collaboration and interaction requirements, etc., aim to standardize the design of edge computing from the perspective of the Internet of Things and guide the development of edge computing. This will promote the application of edge computing in IoT systems. GB/T 41780 is proposed to consist of five parts.

1.General Requirements. The purpose is to define the terminology for IoT edge computing and the types of edge computing nodes, and to propose IoT... The system architecture and functional architecture of edge computing define the functional requirements of edge computing nodes in Internet of Things (IoT) systems.

2.Data Management Requirements. The aim is to unify the data management functional framework for IoT edge computing and to specify the requirements for different edge computing... Data management requirements for computing nodes and data security requirements for edge computing.

3.Node Interface Requirements. The purpose is to provide interface descriptions for IoT edge computing nodes and to standardize interface requirements.

4.Node Technical Requirements. The purpose is to specify the technical requirements for each edge computing node, taking into account its unique characteristics. Require.

5.System Collaborative Interaction Requirements. The aim is to unify the collaborative interaction framework of IoT edge computing systems and specify the requirements for edge computing... The requirements for information exchange and collaboration between computing objects. IoT Edge Computing Part 4. Node technical requirements

1 Scope

GB/T 41780.4-2025 is the Chinese national standard covering the edge node itself - the compute, storage and network it must provide, the local autonomy when the link to the cloud is lost, the application deployment and lifecycle on it, the security and the remote management. Part 4 of the series, first edition. In force from 1 May 2026. Issued on 5 October 2025, it has been in force since 1 May 2026.

This document specifies the functions and performance of edge computing nodes, including IoT terminals, edge gateways, edge controllers, and edge computing servers. and safety requirements. This document applies to the design, development, and application of edge computing nodes in Internet of Things (IoT) systems.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 30269.901-2016 Information Technology - Sensor Networks - Part 901: Gateways. General Technical Requirements

GB/T 37044-2018 Information Security Technology - Internet of Things Security Reference Model and General Requirements

GB/T 38624.1-2020 Internet of Things Gateways Part

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Edge computing A computing architecture that deploys computing and storage at the network edge, close to sensing and control devices or data sources. [Source: GB/T 41780.1-2022,

3.1 Modified]

3.2 edge computing node An entity that has data processing, network communication, and storage functions at the edge of the Internet of Things. [Source: GB/T 41780.1-2022,

3.2 Modified]

3.3 IoT terminal It possesses one or more of the following functions. data sensing, data acquisition, control command execution, and data transmission, and also has data communication capabilities. entity.

3.4 Edge Gateway An entity that possesses functions such as data aggregation, network protocol processing and conversion, data transmission, data storage, and control command forwarding.