

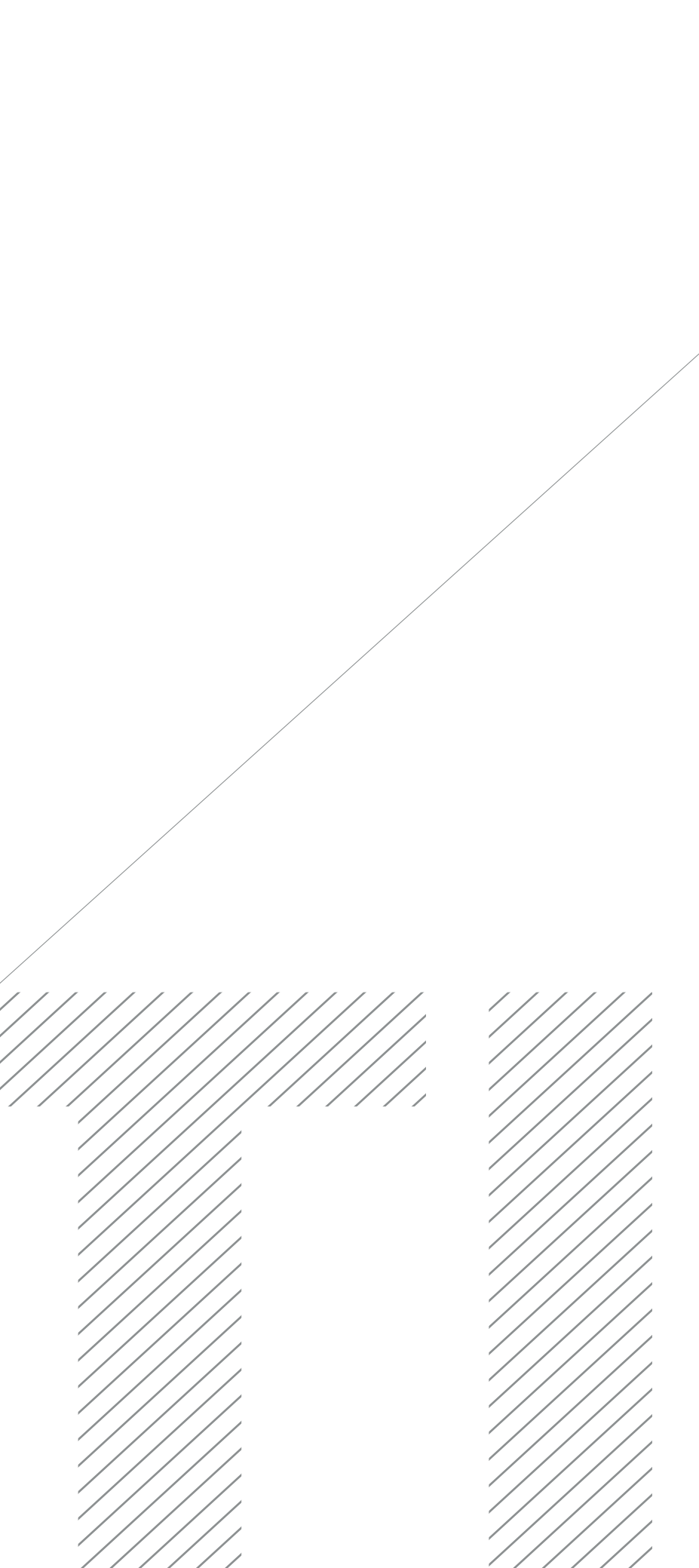
UNFRAMED PERSPECTIVE



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**In the era of change and convergence,
advanced technology being a step ahead of the world
limitless, rich imagination are
of paramount importance.**

**Through the smart business cooperation platform
which brings Solutions by meeting the Needs,
KETI provides creative business value.**

The image features a high-angle, nighttime view of a city skyline, densely packed with illuminated skyscrapers and buildings. Overlaid on this cityscape is a complex, glowing network of white lines and dots, resembling a digital or neural network. The lines connect various points across the frame, some of which are positioned directly over the city buildings, suggesting a connection between the physical urban environment and the digital network. The overall color palette is dominated by deep blues and blacks, with the city lights and network nodes providing bright highlights.

KETI
embedded

A high-angle, night-time photograph of a city skyline, likely Tokyo, with numerous illuminated skyscrapers and buildings. Overlaid on the image is a network of white lines and dots, resembling a digital or neural network, extending across the sky. A bright, circular light source is visible at the top center, casting rays downwards. The text "Connecting imagination to the real world" is centered in the upper half of the image.

**Connecting imagination
to the real world**

Shaping the Future, As a Global Technology Leader, KETI will Take a Leap Forward

Welcome to Korea Electronics Technology Institute!

The era of Pax Technica has arrived. Due to the COVID-19 pandemic, our daily lives are going online and digital, and technology competition among major advanced economies has become a reality, not a future, to secure the global supply chain.

KETI is the R&D institute specializing in electronics and IT under the Ministry of Trade, Industry, and Energy(MOTIE) of the Republic of Korea. Since its establishment in 1991, KETI has driven the growth of domestic small and medium-sized companies in advanced technology fields. Thanks to the efforts, it has been established as one of business-friendly Korean research institutes by taking preemptive action for development of promising technologies to bring technological innovation to companies, and offering tailor-made growth platforms for enterprises.

In the wave of the major industrial transformation, KETI would like to become a global technology leader to take the initiative in changes in our society through signature technology development. To this end, we will contribute to national and industrial technology development with 「2030 three major value propositions」 such as ‘great transformation in 5 major industries (Media·Biohealth·Mobility·Manufacturing·Energy environment),’ ‘SMEs Scale-up,’ ‘addressing national and social issues.’ In this regard, we will actively support for domestic enterprises to grow as global, specialized companies.

I sincerely ask for your great support and interest in KETI which builds another 30-year-long hope.

Thank you.



KETI President
Shin, Heedong

Introduction

Vision

Unframed Perspective

Mission

Lead technological Innovation and commercialization of SMEs

Develop advanced core technologies and create new industries

Organization

Board of Directors

President

Executive Vice President

Materials, Components & Energy R&D Laboratory

IT Materials & Components Research Division
Semiconductor and Display Research Division
Smart Energy & Machine Research Division

AI Convergence R&D Laboratory

Communications & Media Research Division
Convergence System Research Division
Artificial Intelligence Research Division

Gwangju Regional Branch

Jeonbuk Regional Branch

Southeast Regional Branch

Technology Commercialization Division

Strategic Planning Division

Operations Management Division

History

1990's

1991.08

Established Korea Electronics Technology Laboratory

1995.03

Established Reliability and failure analysis Center

1997.08

Designated as a testing institution of Korea Laboratory Accreditation Scheme (KOLAS)

1999.08

Changed Name to KETI
(Korea Electronics Technology Institute)

2000's

2005.04

Established Gwangju Regional Branch

2006.12

Established Jeonbuk Regional Branch

2008.05

Established Sangam Branch at DMC in Seoul (Specialized in communication & media R&D)

2010's

2012.07

Established Pangyo Branch in Seongnam
(Specialized in system IC R&D)

2018.03

Established Air Consumer Electronics Innovation Support Center

2019.10

Established Southeast Regional Branch (Changwon)

2020.07

Renamed its official Korean name

2024.12

Established the 2nd Campus (Pangyo GBiz) in Seongnam

As global R&D institute, KETI creates enterprise value

1990's



1991~2011

Fundamental technology for electronic components

Technology innovation for SMEs specializing in electronic components

1993~1998

GSM(Global System for Mobile Communications) mobile telecommunication devices

Export item initiative of GSM mobile phone

1994~1998

Interactive CATV systems

Localization of CATV systems

1995~2000

Application Specific Integrated Circuit(ASIC)

Driving force for the domestic HDTV industry

1995~2002

Micro Electro Mechanical Systems (MEMS) technologies

Base technology for the convergence industry

2000's



1997~2000

Small precision motors for home appliances and multimedia devices

Core components technology for digital home appliances

1999~2009

Next-generation large capacity storage devices

Base for commercializing large capacity storage devices

2001~2007

Development of Promising Next-generation Electronic Components

Development of core components such as micro motor and flexible devices

2003~2008

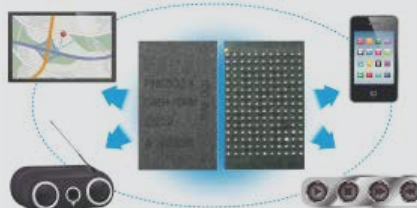
Next-generation DAB-DRM receiver technologies

Core technologies for next-generation digital mobile TV/Radio

2004~2009

Next-generation Batteries Project

Development of Components & Materials of Secondary Batteries



2010's

2009~2020

Vehicle Safety Service Technologies for Connected Vehicle

Next generation ITS & V2X wireless communication technologies for autonomous vehicle

2011~2018

Development of Key Technologies to Create Global IoT Ecosystem

Core technologies for open IoT platform(Mobius) and global interworking

2013~2018

Nano-Carbon Film Heater

Flexible high-temperature film heater for EVs and home appliances



2020's

2016~2020

Optical Engine Technology for Scanning Lidar

Multi-channel scanning lidar technology for ADAS and self-driving vehicles

2018~2020

AI Companion Technology

AI-based sign language recognition technology

2019~2021

Development of ultra-high frequency chip for 5G FR2 band wireless communication

Localization of 5G communication components suitable for high-speed transmission

2019~2026

Development of a High-Voltage Battery System for Electric Vehicles with Ultra-Fast Charging Capability within One Minute

Development of core and application technologies for ultra-fast charging

Development of manufacturing process technology for all-solid state battery with large size format

2024~2027

Development of Core Technology for Deepfake Detection

Deepfake Video and Audio Detection Technology for Digital Forensic Science



Materials, Components & Energy R&D Laboratory

IT Materials & Components Research Division

The key to global technology competitiveness is shifting to materials and components with global standardization of assembling·processing technology of end products. The IT Materials & Components R&D Division is developing core technologies required in whole industries including electronics, telecommunications, energy, and display as the advanced materials and components technology that enables to respond to future industry demand in the 4th industrial revolution era. We have been especially dedicated to research and develop the flexible electronic components, RFIC, system packages, next-generation displays along with nano converging technology and convergence-complex technologies for electronic material. As a designated testing institution by Korea Laboratory Accreditation Scheme(KOLAS), we are also developing reliable techniques to improve reliability and quality of electronic components, providing systematic support for the testing, evaluation and improvement of product venerability produced by SMEs and business ventures. We promise to create a new market through materials & components development that responds to industry demand.

IT Materials & Components Research Division



ICT Device & Packaging Research Center

- GaN/InP device, modeling, components
- RFIC for communications/radar
- Wireless/Satellite communication and radio application components(Antenna, RF filter, Beamformer, FEM, RF modules, Meta-surface, etc.)
- 5G/6G RF components and O-RU technology
- Low loss packaging materials for mmWave and high speed application
- mmWave and 2.5D fanout packaging
- Quasi-, Interposer-MMIC power amplifier technology
- Package signal and power integrity analysis
- 4D-image and synthetic aperture radar components AiP(Antenna-in-Packaging) / AoP(Antenna-on-Packaging) technology
- System-in-Packaging/System-on-Packaging/System-on-Module technology

Electronic Convergence Materials and Devices Research Center

- Space compliant 3D printing composite materials
- Large scale/ fast ALD process and applications for Semiconductor
- Smart window functional materials for Future mobility
- Package technology for Future mobility/ Module connection material & process
- Piezo-materials and component manufacturing for Future mobility
- Future New industry demand oriented ceramic materials and process
- Future New industry demand oriented composite materials and process
- Future New industry demand oriented metal interconnection materials and process
- Thin film materials and process for Advanced Manufacturing
- Advanced packaging materials for Semiconductor
- EUV semiconductor materials and component manufacturing
- Semiconductor packaging materials for aerospace and military applications
- 6G communication material & component manufacturing technology & evaluation platform
- Next generation communication EMI shielding/ absorption material & analysis platform



ICT Nano Convergence Technology Research Center

- CNT materials and functional composite
- Graphene materials, devices, processes and applications
- Silver nanowire flexible electronics and applications
- Conductive ink/paste materials for electrode applications
- Printed electronics and additive manufacturing
- Heating materials, TIM, thermal managing materials and components
- Organic/inorganic hybrid chip bonding materials for semiconductor
- Nanohybrid materials and environmental applications
- Highly functional thin film coating
- Optical device & laser application
- MEMS sensors and actuators
- Sensor ROIC & High Voltage driver IC
- Advanced manufacturing and process monitoring

Reliability Research Center

- Thermal solution (test/measurement/analysis)
- RF/EMC solution (test/measurement/analysis)
- Power semiconductor lifetime evaluation
- Power semiconductor solution (test/measurement/analysis)
- Reliability evaluation of electronic components in Aerospace
- Computer aided engineering (Thermal/stress/EMC)
- Reliability prediction (MIL 217+)
- Reliability testing (KS, MIL, AEC-Q)
- Accelerated life testing (ALT, HALT)
- Failure analysis and materials reverse engineering
- Integrated electron microscopy analysis
- Material analysis under extreme condition
- PHM (Prognosis & health monitoring)

●●
The IT Materials & Components Research Division is developing core technologies that are required in all industries including telecommunications, semiconductor, electronics, aerospace, energy, military defense and automobile as the advanced materials and components technology that enables to respond to future industry demand in the 4th industrial revolution era.



In the era of the Fourth Industrial Revolution and the evolving landscape of global supply chains, semiconductor and display technologies are the most critical technologies. Leveraging semiconductor technology to sense and make intelligent judgments about the real world, digitize information, and display processed data on screens plays a pivotal role in enabling innovative services such as autonomous vehicles, smart devices, and foldable displays. The Semiconductor and Display Research division is concentrated on next-generation semiconductor technology, including artificial intelligence, general-purpose&specialized SoC platform technology covering all fields of ICT and automotive, XR and flexible next-generation display technology. And we also focus on RF transceiver for Beyond 5G, high-speed physical layer interface for next-generation memory, and smart sensor technology. We will actively support domestic fabless, sensor, foundry, and display companies, which are at a new turning point by securing advanced semiconductor and display technologies, to improve their competitiveness.

Semiconductor and Display Research Division



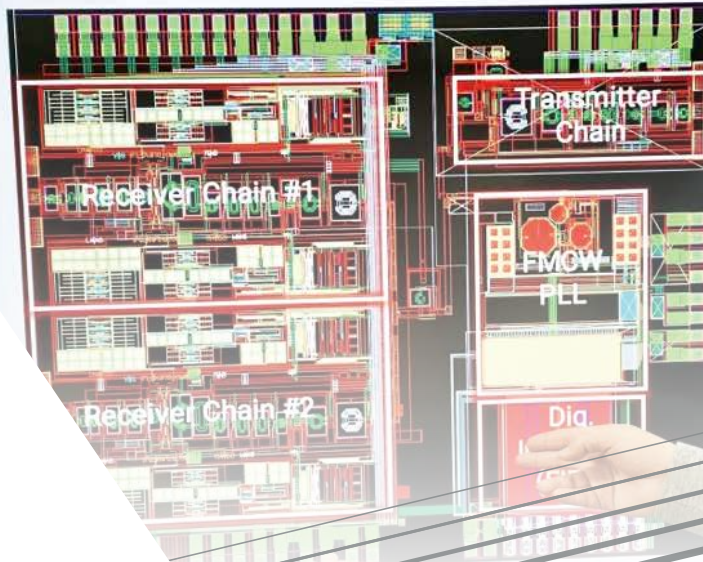
SoC Platform Research Center

- NPU architecture and Intelligent SoC technology
- HW/SW Platform technology for PIM (processing in memory)
- HW/SW Platform technology for quantum computing simulation(Quantum computer algorithm, hardware acceleration, and framework)
- Signal processing for multi-modal sensor for automotive semiconductor
- Hardware-aware LLM integration technology
- MLOPS SW Platform Technology
- AI benchmark performance evaluation and profiling technology
- High-Speed Interface PHY IP technology
- Optic-SoC technology (Operation Organization)
- Verification Support & Certificate Center for Semiconductors and Products

Convergence Signal SoC Research Center

- RF/Analog/Mixed-signal IC Design and Signal Processing Technology
- Wireless Communication RF Transceiver Design Technology
- Wireline or Wireless Sensor Interface(ROIC) Circuit Design Technology
- Intelligent Radar Sensor and Signal Processing SoC Technology
- Next-generation Data/Memory Serial Interface(SERDES) Design Technology
- High-efficiency PMIC(Power Management IC) Design Technology
- Artificial Intelligence Analog Computing Technology

120GHz FMCW Radar Sensor



- VPLL
- 6GHz
- 2.5MHz Si
- Controllab
- Die Size: 3n
- High-Spee

Display Research Center

- Organic/Inorganic Light Emitting Display (OLED, QD EL, Inorganic EL, micro & nano LED)
- Reflection type display (electronic paper)
- Driving Circuit and devices : Oxide TFT active matrix, Passive matrix
- Free Shape Display (Flexible, Stretchable, Rollable) and simulation, evaluation tool system
- Holographic Display devices (Laser holographic LCoS) and AR/VR view angle equipment
- Nano-photonic Crystal, Quantum-dot, Nano Imprint Optical Polymer and Film
- 2D Digital Sensor Array and Image Diagnosis Device
- Large Area Functional Polymer and Device of Heat Dissipation, Shielding, Self-Heating
- Transparent Solar Cell, Sensor and Module for Smart Window
- High precision sub-micron patterning KrF and Maskless lithography
- ACF or package evaluation platform with Test DDI and substrate

Smart Sensor Research Center

- Nano/MEMS-based smart sensors and components(temperature-humidity / pressure / accelerometer / magnetic / flow / IR / ultrasonic / sound / THz sensors, etc.)
- Next-generation input devices and NUI/UX(touch, Virtual sensor, wearable, etc.)
- Integrated optics sensors and devices (evanescent field-based sensors, laser applications, etc.)
- Environment/Bio sensors and devices(Gas Sensor, Lab-on-a-Chip, waveguide-based sensors, etc.)
- Self-powered IoT devices and wearable sensor technology(Energy Harvesting and wireless power transmission)
- Smart Sensor Application System

Intelligent Semiconductor Device Research Center

- On-device AI meta-learning technology and training processor design
- Application-specific lightweight multimodal AI model and system design(smart home/autonomous vehicle/ robot/manufacturing, etc.)
- Low-power AI inference processors/compiler design for edge and mobile devices
- LiDAR/radar point cloud-based 2D/3D fusion AI spatial computing processor/system design
- Cloud/device federated learning and lossless AI model compression technology
- AI model Lightweighting(NPU/PIM-Aware) and lightweight neural network automatic exploration/ generation technology
- Large-scale AI model multiple/heterogeneous computing resources distributed inference technology



We will actively support domestic fabless, sensor, foundry, and display companies, which are at a new turning point by securing advanced semiconductor and display technologies, to improve their competitiveness.

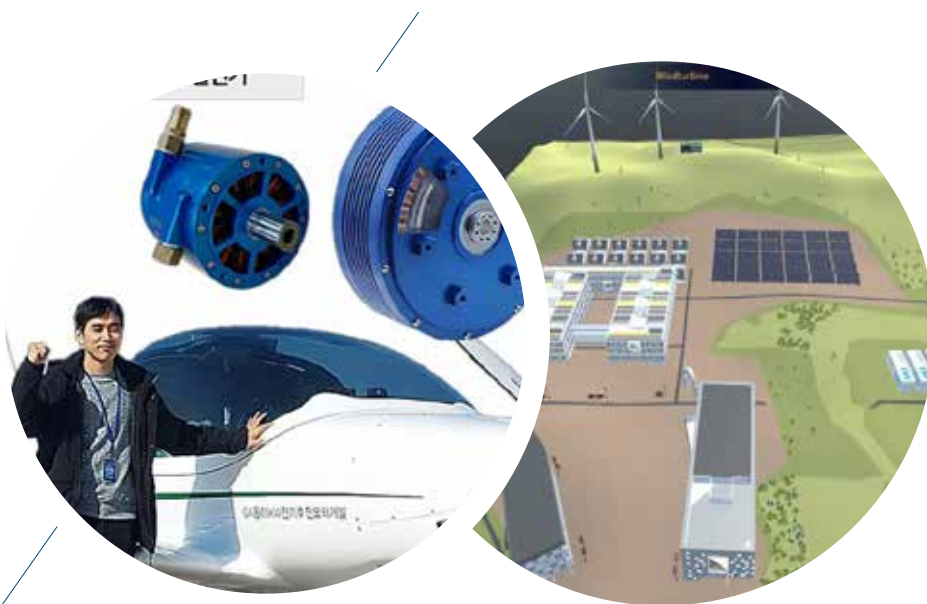


Smart Energy and Machine Research Division is developing key technologies for high-efficiency and low-carbon energy systems that respond to climate change and create new energy industries. We strive to have the ability to respond to trends such as efficiency improvement and decentralization and electrification across all sectors ranging from production, storage and consumption of energy.

We are conducting research and development on IT-based demand management such as big data and digital twin, energy and IT convergence technologies that increase efficiency, next-generation battery technologies such as lithium and solid state, and new energy such as hydrogen. The machine sector focuses on high-efficiency, high-density, and high-reliability technologies of power conversion systems, as well as mechatronics technologies such as mobility power devices and high-efficiency industrial motors.

Based on the competitiveness of digital technology, we will grow into a Research division that leads the transformation of industrial structure such as digital transformation, green transformation, and GVC transformation of our industry.

Smart Energy & Machine Research Division



Energy IT Convergence Research Center

- Internet of Things (IoT) based industrial energy management
- Load resource integrated Demand Response (DR) system
- Artificial Intelligence (AI) System for Energy Management System (EMS)
- Cluster-based energy time series big data platform
- xEMS supporting interoperability based on W3C Web of Things standard
- Operating system technology for Virtual Power Plant (VPP)
- Digital Twin system based renewable energy (Photovoltaic, Wind) forecasting and control
- Distributed grid-forming resource power management system

Advanced Batteries Research Center

- Cathode and anode materials of lithium secondary batteries for electric vehicles
- Solid electrolytes and all solid-state batteries
- Next generation battery with high energy density using lithium metal
- Redox flow batteries for energy storage
- SO₂ inorganic electrolyte-based rechargeable batteries
- Materials for lithium-ion capacitor
- Cutting edge analysis techniques for materials & components of rechargeable batteries
- Reuse, repurposed, recycling technologies of used rechargeable batteries
- Water electrolysis materials and cells for green hydrogen
- Water electrolyser long-term stability enhancement
- Satellite photovoltaic modules
- Silicon/Perovskite photovoltaic modules
- Reducing Carbon Emissions in the manufacturing of photovoltaic modules

Power System Research Center

- Next-generation power electronics system (inverter/converter) solution using WBG devices
- Next-generation power electronics technology for electric power train of future mobility
- Power electronics technology for renewable energy and ESS connected to grid forming inverter
- High precision/high power density converter technology for battery charging – discharging system
- High performance motor control technology based on real time multi-processing
- Performance evaluation Technology of power conversion system on applications

Intelligent Mechatronics Research Center

- High-power design technology for electric propulsion system of future mobility
- High-efficiency and high-precision industrial electric machine design technology
- Advanced design technology for electrification based power transmission module
- Electromagnetic field/structure/thermal coupling analysis and design technology
- Multi-physics based thermal management technology for electric power system
- Smart fluid machinery analysis and design technology
- Energy/Environment/Safety related flow system control technology



Smart Energy and Machine Research Division is developing key technologies for high-efficiency and low-carbon energy systems that respond to climate change and create new energy industries



Smart media services that adjust to the user's mood, augmented reality where virtuality meets reality, 3D holography that realize dreams into reality, vehicles that drive themselves. All of these are pieces of ideal world that we dream of as well as the aim of the Communications & Media R&D Division. The division is developing next-generation core communication technology including short-distance wireless communication, wireless power transfer, VR/AR, and digital holography, and focusing research on next-generation ICT services such as smart home, next-generation broadcasting, digital contents, smart media, and virtual training system, etc. We will continue our efforts in improving the quality of people's lives by providing services that transcend time and space.

Communications & Media Research Division



Information Media Research Center

- AI converged data science technology
- Enhancing data value and value data connection/sharing technology
- Data-driven business decision support technology
- Cloud-based edge/intelligent management technology
- Time series data preprocessing and intelligence generation platform technology
- Data analysis and system interworking technology in intelligent physical security systems
- AI-based media analysis, creation and production technology
- AI-based audio analysis technology
- Intelligent service technology that combines media and data

XR Convergence Platform Research Center

- Industrial education and virtual training software & system
- Virtual reality device and software & system
- Augmented reality device and software & system
- Five senses & emotion devices, system and services
- Hyper-reality interaction technology
- 5G based cloud VR/AR services
- Knowledge based VR/AR application services

Smart Network Research Center

- Low power short-range wireless communication
- (B-CDMA, SWIPT, Batteryless communication)
- Universal (land/sea/underwater/space) data communications
- Intelligent real-time wired and wireless networking technology
- Wireless power transfer
- (EV wireless charging, RF wireless charging)
- Energy harvesting
- Intelligent NPU(Neural Processing Unit) and high-speed interface PHY technology
- Digital transformation technology for oceans and fisheries

Hologram Research Center

- Deep-learning based real-time hologram streaming on 5G network
- HOE design tool and digital HOE printing technology
- Copyright technology for smart glass (MR/XR)
- S/W for low vision and visually impaired
- In-Camera VFX-Based Realistic 3D Representation Technology
- Holography-based XR display technology
- Photo-realistic metaverse character & motion AI generation technology
- AI-based digital asset creation technology
- Speech-based character animation creation technology
- Object recognition technology for VFX
- Mobility Holographic HUD
- 4D Volumetric Content
- XR Contents Streaming Technology

Contents Convergence Research Center

- Virtual Convergence Technology
- (Applied to Industries such as Manufacturing, Mobility, Robotics, Defense, Culture, etc.)
- Generative AI-based Content Creation Technology
- Hyper-realistic/Intelligent XR Content Technology
- Hyper-sensory Digital Human Technology
- User-centric Interaction Technology
- Metaverse Service Technology
- Content Copyright Protection/Management Technology
- Blockchain Application Technology

“The division is developing next-generation core communication technology including short-distance wireless communication, wireless power transfer, VR/AR, and digital holography, and focusing research on next-generation ICT services such as smart home, next-generation broadcasting, digital contents, smart media, and virtual training system, etc.”

AI Convergence R&D Laboratory

Convergence System Research Division

Convergence is the heart of the change in the era of the 4th industrial revolution. The Convergence System Research Division is the technology fusion workshop that builds unpredicted future by combining infinite number of technology DNA pieces. In the age of digital transformation, to realize data-centric and hyper-connected intelligent information society, our research works focus on autonomous intelligent IoT, data hub and digital twin technologies that provide autonomous connectivity, self-judging and mutually collaborative capabilities of things. To carry out the digital medical era, we also research on AI digital healthcare such as digital diagnosis, treatment and medical devices. Also, cloud native and edge computing technologies for distributed big data processing, and human-AI interaction are also included in the research scope. In addition, we aim to work on the metaverse platform technology that enables user interaction based on experience and participation, which is the core of the contact-free era where the real and virtual worlds are integrated. Data standardization on gas and thermal energy with industrial big data platform are also covered by our technology convergence. The acceleration of digital transformation in manufacturing industry is also a crucial research focus of our center, encompassing Industrial digital twin information models, platforms, services, and AI technologies. Experiencing the technology convergence era, we provide all our support to companies to improve their business competition.

Convergence System Research Division



Autonomous Intelligent System Research Center

- Signal processing and machine learning for industrial data
- Multimodal data fusion technology
- Spatiotemporal data analysis technology
- User understanding and interaction technology
- Physical-virtual space convergence technology
- Digital twin technology
- Autonomous decision-making and collaboration technology
- Autonomous intelligence utilization enhancement technology (Practical AI)
- Domain-converged Artificial Intelligence (AI+X) technology
- Industrial Intelligence Convergence Application Technology such as forest disaster, shipbuilding and port management, public security, etc.

Medical IT Convergence Research Center

- AI-based Digital Healthcare
- Cloud Native
- Intelligent Edge Computing
- Digital therapeutics
- Medical Digital Twin
- Energy-based Treatment Devices
- Electronic Medicine and Bioelectronic Devices
- Bio Sensors and Bioprocessing Equipment
- Smart Beauty Devices and Personalized Treatment System Cloud technology for microservices



The Convergence System Research Division is the technology fusion workshop that builds unpredicted future by combining infinite number of technology DNA pieces.



Autonomous Manufacturing Research Center

- Manufacturing-specific AI Service
- MaaS(Manufacturing as a Service) Platform
- Industry 5G
- Digital Twin Framework and Edge Computing
- Improvement and support for safety and know-how
- Infrastructure-Establishment for digital transformation and education support
- Testing and Certification of Industrial Standard Communication (OPC UA) Interoperability
- Korea-Germany Demo Factory Collaboration

Autonomous IoT Research Center

- IoT platform and data hub
- IoT communication and network
- Autonomous IoT technology
- Digital twin technology
- Spatiotemporal data analysis technology
- Edge IoT technology
- Distributed IoT collaborative intelligence technology
- Unmanned vehicle technology (autonomous driving/flight, spatial recognition, GCS)
- AI-based IoT infrastructure management technology
- IoT convergence technology such as smart city, digital quarantine, forest disaster, digital shipbuilding, smart port, etc.

The new era of wisdom comes closer beyond the era of smartness. In this era, the technologies such as Big Data and AI, which support and promote technological, social, and economic changes through knowledge and wisdom obtained by mining, refining, and inferring information from data, are considered the core of the 4th industrial revolution.

The Artificial Intelligence Research Division is actively developing various innovative technologies such as intelligent image processing, image recognition-based object tracking, multi-modal interaction & reasoning, natural language processing, as well as mobility platform technologies like autonomous driving, V2X communication, unmanned vehicles. Additionally, we are working on intelligent convergence software technologies, manufacturing and service robot systems, robot actuator sensor control modules, evaluation, and application services related to intelligent robotics technology. Through key technologies such as artificial intelligence, intelligent media, intelligent mobility, intelligent robotics, intelligent convergence software, and intelligent services, which are the future core technologies of the national future strategy industry, we aim to lead the future era in collaboration with innovative companies.

Artificial Intelligence Research Division



Multi-Modal Research Center

- Deep learning based video recognition & tracking technology (object, facial expression, gesture, human emotion, pedestrian, scene, video form-factor conversion, etc)
- Video-based 3D objects(human) generation & deformation technology
- Image-based motion capture and transfer technology
- Large model-based style transfer, image composition, & neural rendering technology
- Video based context understanding technology (image captioning, highlight generation, etc)
- UHD/3D video codec technology
- Video quality enhancement technology (SR, HFR, form-factor conversion, underwater video, satellite/aerospace video, etc)

- Deep learning optimization technology for Mobile/Edge devices
- Image processing acceleration HW IP design technology
- NPU HW IP design technology for Mobile/Edge devices
- Self directed visual intelligence technology based on self-supervised learning methods
- Audio preprocessing, STT & TTS technology

Mobility Platform Research Center

- Autonomous mobility platform and service technology
- Recognition-tracking-prediction and planning-control technology for Autonomous mobility.
- Data collection-analysis and conversion technology for A.I training and verification
- Game engine-based virtual verification/validation solution, development technology
- Deep learning model compression technology for autonomous mobility embedded system
- Autonomous mobility certification/security technology
- Autonomous mobility sensing signal processing technology
- High-speed V2X communication technology for connected and autonomous mobility

Intelligence Integrated Software Research Center

- Industry data platform & Industry AI software
- Industrial operating software level virtualization and orchestration software
- Industry big data convergence for AI to digital transformation(DX)
- Battery performance analytics technology of EV data
- Data analysis and control system based on wearable devices
- Intelligent control and optimization with digital twin of 3D printing design and manufacturing process
- 3D Printing build strategy, processor, and simulation software for additive manufacturing
- Component-based graphics & enhanced video rendering framework solution

Intelligent Robotics Research Center

- Robotics based service technology
- Industrial and service robot system technology
- Robotic application evaluation and technical support
- Intrinsic robot technology such as mobility, manipulation and teleoperation
- Advanced robot intelligence technology including perception, decision, action and HRI
- Cloud Robotics and RIoT (Robot IoT) technology
- Robot motion and process control technology
- Robot actuator, sensor, control module technology
- Precision mechanical parts technology such as robot reducer
- Robot convergence components evaluation and technical support

AI Foundation Model Research Center

- Understanding human behavior and intents
- Situational, and context understanding, and multimodal reasoning
- Natural language understanding and representation
- Understanding, explaining, and analyzing contents
- Continual understanding based human interaction, decision, and modeling
- Core research on artificial intelligence
- Multi-modal reasoning
- Commonsense reasoning



Through key technologies such as artificial intelligence, intelligent media, intelligent mobility, intelligent robotics, intelligent convergence software, and intelligent services, which are the future core technologies of the national future strategy industry, we aim to lead the future era in collaboration with innovative companies.



- Autonomous Service Technology for Connected and Automated Mobility
- In-vehicle network/gateway platform technology for autonomous mobility
- Vehicle-infrastructure-cloud network security technology
- Autonomous cooperative mobility
- Seamless ultra-low latency V2X communication and security technology



Gwangju Regional Branch

KETI Gwangju Regional Branch has contributed to strengthening the technological capabilities of small and medium-sized enterprises and developing local industries with the goal of leading the region's cutting-edge technology and strategic industries.

We research on AI home appliances including Air appliances, which is a regional branch business, and are contributing to the development of the metaverse industry through sensor fusion using LiDAR source technology, multidimensional spatial recognition and signal processing, intelligent immersive interaction technology, and XR human computing.

In addition, we will do our best for higher value added local industries and serve as a global outpost through intelligent energy management systems through direct current transmission and distribution and microgrids, and energy efficiency and performance advancement of eco-friendly transportation machinery and mobility systems.

Gwangju Regional Branch



Energy Convergence Research Center

- LVDC, MVDC, HVDC and micro-grid core technology
- Power conversion technology for renewable energy and energy storage system
- Intelligent energy management system
- Power analysis & evaluation technology of grid

Smart Electrics Research Center

- Distributed Control and Operation Technology
- Mobility System AI-based Diagnostic and Prediction Technology
- Electric Drive and Power Conversion Technology for Mobility
- Power Architecture Redundancy and WBG Semiconductor Driving Technology
- Electric Battery Operation and Charging/Discharging Technology
- Redundancy Drive Technology & Motor and Actuator Optimum Design
- Design Technology of Electromagnetic Sensor and Passive Device

IT Convergence System Research Center

- High resolution and multi-channel LiDAR
- SIL/HIL/VIL System for Automotive Sensor
- AI based 3D multiple object detection & spatial recognition
- XR human computing technology

AI Convergence Appliance Research Center

- Life tracking-based health management service tailored for the elderly
- Contactless biometric signal-based active sleep care service for users
- IAQ(Indoor Air Quality) filtration technology(E-HEPA, Virus sampling, Low-level CO2 capture)
- Infrastructure Technology and Standardization of AI/Air home appliances
- Operation of domestic and international standard testing institutes (KOLAS, etc.)
- Support for Product advancement and commercialization of smart appliances industry

Jeonbuk Regional Branch

As a leading ICT convergence R&BD organization in Jeonbuk, we will continue to do our best as an open partner to discover new industries such as D.N.A. convergence economy, smart agriculture and life, renewable energy, digital culture and tourism content, autonomous driving and mobility, and digital twin.

Jeonbuk Regional Branch



Smart Electronics Research Center

- Technical support for display and flexible devices
- Next generation display devices and nanomaterials
- Wearable devices integrated with sensors
- Power control system for hybrid energy storage devices

IT Application Research Center

- Intelligent control technology for mobility and robots
- Precision agriculture and ICT convergence agricultural bio-convergence technology
- Automotive electronic components and electromagnetic compatibility related applications
- IT Applications with next generation Energy harvesting & storage components and materials
- IT Applications with 3D printing & Nano Carbon components and materials

Digital Innovation Support Center

- Data and AI modeling technology for local industrial digital transformation
- Cultivating next-generation display and D.N.A technology convergence digital experts
- Electronic component reliability/measurement analysis equipment service support
- Support for technological advancement and commercialization of SMEs and Startups

Southeast Regional Branch

Southeast branch is responsible for improvement in corporate productivity and creation of highly-added value by linking capabilities of KETI, the leading research institute in smart manufacturing, with key industries in the region. We are also focusing on fostering ICT talent and companies by utilizing our DNA (Data, AI, Network) capabilities and creating new growth models for new industries such as robots and defense.

Southeast Regional Branch



ICT Convergence Research Center

- ICT technology for the precision machine in the defense/aviation domain
- Digital factory ICT convergence technology
- Industrial Robot-based automation process improvement technology
- Ultra-precision industrial process and equipment improvement and ICT convergence technology
- Smart factory advancement consulting and education

Industrial Data Convergence Research Center

- Intelligent components and sensor technology for industrial data generation
- Industrial data analysis and control technology
- Industrial data convergence artificial intelligence S/W technology
- Industrial digital transformation enterprise support
- Aerospace and Defense industry technology advancement support

KETI – SME collaboration platform, where ‘needs’ create ‘solutions’





01

Joint R&D

KETI is a leader in the field of advanced electronics & IT technologies. Companies can join in joint R&D projects with KETI.

02

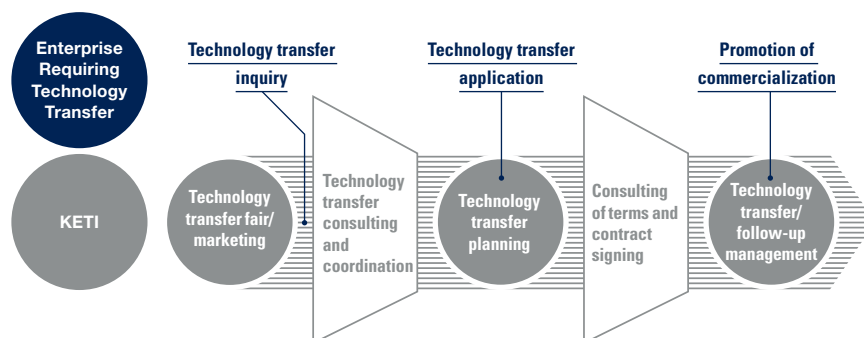
Technology Transfer and Commercialization Support

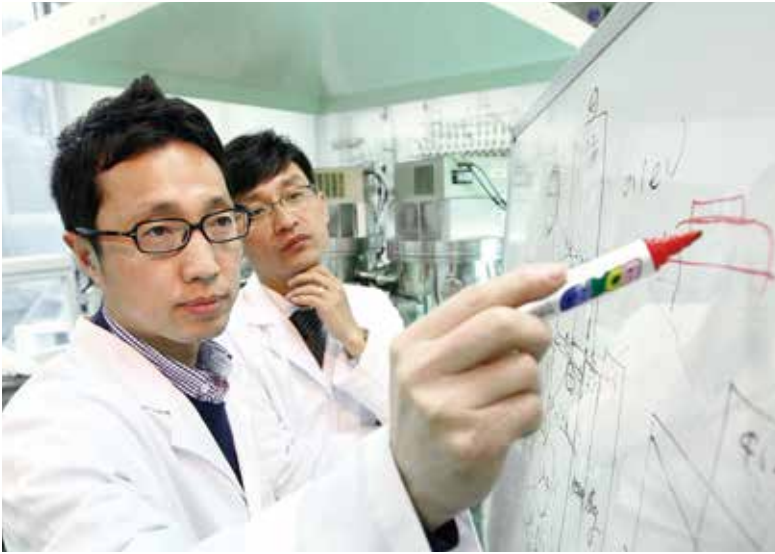
KETI has know-how to transfer our core technologies and patents, and helps the SMEs achieve commercialization successes.

• Technology Transfer Information

After accessing KETI website (www.keti.re.kr), then click 'Collaboration Platform'

• Technology Transfer Process





03

Technology Consulting

We provide technology solutions for enterprises through expert matching, customized technology guidance and consulting.

04

Reliability Testing/Analysis

As an international accredited reliability testing agency (KOLAS), KETI provides reliability test, evaluation, analysis and solutions concerning developed and manufactured products. We are ready for diverse reliability tests and analysis requests such as failure analysis, heat reliability, reliability prediction, automotive application product reliability testing (AEC-Q), EMC analysis/solution and accelerated-life testing (ALT).

05

Research Equipment Utilization

You can utilize a variety of research equipment at KETI. KETI supports the use of over 400 high-tech R&D machines related to optical & electronic image and radio wave measuring, compound preprocessing analysis, semiconductor process & test, communication signal processing and electrical & electronic measuring, testing and analysis.

Uniting Expertise Worldwide



United States

- Robotic systems capable of seamless
 - * Georgia Tech., MIT, Stanford Univ.
- Electromagnetic wave absorption, crucial for the next generation of mobility solutions
 - * Purdue Univ., Drexel Univ.
- Gas sensors Combining Mid-Infrared optical devices.
 - * Yale Univ., Univ. Southern California
- Cooperation in the next-generation battery sector
 - * Solid Power Inc.
- Joint R&D in AI and Robotics and implementation to industrial areas
 - * SwRI



Germany

- MOU encompassing co-development in certification & post-approval services related to SDVs
 - * TUV SUD
- Research exchanges in autonomous systems & digital twin technologies
 - * German Research Center for AI, DFKI
- Co-development in AI-based mobile dual-arm robots
 - * Schaeffler Group
- Focus on material & process technologies for eco-friendly solutions, specialized in smart battery foundry industries
 - * Fraunhofer IKTS, IWS, IPT



Austria

- Joint R&D in AI and Robotics and implementation to industrial areas
 - * TU Wien



France

- AI agent platform aimed to enhance human-AI interactions
 - * National Institute for Research in Artificial Intelligence and Technology. INRIA



Sweden

- Cooperative activities in the fields of next generation semiconductors & automobiles
- Development of smart, attack resistant IoT networks
 - * Research Institutes of Sweden. RISE

for Breakthrough Research Opportunities



Poland

- Cooperation in advanced fields for electronics and IT
- * Lukaszewicz Research Network



Spain

- Joint R&D to advance technologies in AI services, digital twins, XR and IoT
- * CT Ingenieros.



UK

- Joint development of core AI technologies & future mobility solutions
- * University of Birmingham



Vietnam

- Collaborative research, knowledge exchange in cutting-edge technology
- * VNU University of Engineering and Technology, VNU-UET



Czech

- Joint research in cutting-edge fields: AI, autonomous driving, digital twins. Energy efficiency and robotics
- * Czech Technical University in Prague, CTU

Contacts

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*Design your innovation
with KETI*





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