

MILDEF CRETE

Corporate Newsletter



Introduction

By Denis Wu – Manager of Manufacturing Department

As the manufacturing department of a defense computer company, we are committed to continuously improving our production processes and efficiency. We are well aware of the fierce market competition, so constantly seeking ways to improve production efficiency and product quality is crucial. To this end, we regularly assess and analyze our production processes to identify potential bottlenecks and areas for improvement. Engineers are constantly exploring the latest manufacturing technologies and solutions to increase product assembly speed and quality standards.

At the same time, we emphasize employee involvement and feedback, encouraging them to make suggestions for improvement and participate in it continuously.

We will continuously enhance the efficiency and competitiveness of the manufacturing department, laying a solid foundation for the company's development and success.

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Introducing the Robust Mobile Workstation - RK15

By Annabelle Wu

Designed for outstanding performance and reliability in the most extreme environments, the newly launched rugged mobile workstation, RK15 raises a new standard for durability, versatility, and processing capability. Whether you're working in the field, aboard a vehicle, or in a challenging industrial setting, RK15 always delivers the excellent computing power.

As enhanced from the previous series, RK15 has been upgraded to a server-grade CPU. Equipped with the powerful Xeon W-11865MLE processor, it is capable to achieve the 3.4GHz and even peak at 4.0GHz under turbo boost. For security features, RK15 comprises with TPM2.0 and optional smart card reader ensure your data stays secure at all times.

RK15 is built to overcome harsh environmental challenges which is implemented with a remarkable fan design to ensure efficient heat management and long-lasting performance even under the most critical conditions. The intelligent temperature management is monitored through the temperature sensor where the fan will operate dynamically in response to workload and temperature fluctuations. The thermal design is able to strategically direct airflow across significant components, such as the CPU, GPU, and storage drives, ensuring efficient cooling under intense workloads. RK15 undergoes rigorous thermal testing and engineering to ensure that it can perform optimally even in extreme temperatures. With the robust heat dissipation system, RK15 assures to deliver high computing performance consistently. Whether operating in scorching heat or freezing cold, it can efficiently deliver reliable performance without compromising on computing power.

From the display viewing perspective, RK15 retains its 4:3 aspect ratio that maximizes the vertical display. The high brightness LCD of 900 nits and optical bonding provide a vibrant 15" display, enabling good visibility of on-screen content even in bright outdoor environments. Associated with Intel UHD Graphics, RK15 deliver captivating visuals and smooth performance for graphics-intensive tasks. Furthermore, the display could be customised to resistive touch screen, improving versatility and ease of usage in any context.



To maximize computing capability, the RK15 system memory can support up to 64GB of DDR4. Featured with the ECC RAM, RK15 is able to detect and correct typical types of data corruption that can occur while operating a computer system. This eventually fosters the integrity and reliability of the system's memory. Moreover, the easily field-removable SSD with a capacity of up to 2TB offers rapid and reliable data access, regardless of tough environments.

Despite, this flexible workstation offers diverse connectivity. It features a wide range of I/O ports, including 2.5G LAN, USB 3.2 Gen.2, USB2.0, Audio Jack, docking connector, and external display ports (VGA port, DP++, DVI port), as well as the optional Express card slot and DB9 serial connectors. The connectivity provide compatibility with a variety of peripherals and accessories. An optional flex bay with optical disk drive (ODD) is available for expanded functionality. Furthermore, the RK15 could be upgraded with the communication options of WLAN, Bluetooth, and GNSS for seamless functionality, as well.



When it comes to MilDef Crete robust devices, MIL-STD-810H specifications and IP65 are the key points of the design. Configured with a magnesium and aluminum case, the RK15 are able to resist to most challenging conditions, such as tremendous dust, water splashing, and even shock, vibration, or drop scenario. RK15 is also capable to operate under productively at extreme temperatures ranging from -30°C to 55°C. Another aspect that must be highlighted is the excellent EMC solutions. As usual, our robust workstation could be upgraded to comply with MIL-STD-461G specifications (Ground Army or Ground Navy).

In terms of performance, durability, and versatility, this rugged workstation is compiled with a diverse of appealing features. Whether you're in the field, or on-site operation, RK15 ensures the smooth multitasking and seamless operation of intensive applications, which will definitely meet your expectation.

The following table compares the specifications of the RK15 to its predecessors. For additional information, please visit the MilDef Crete official website at www.mildefcrete.com.

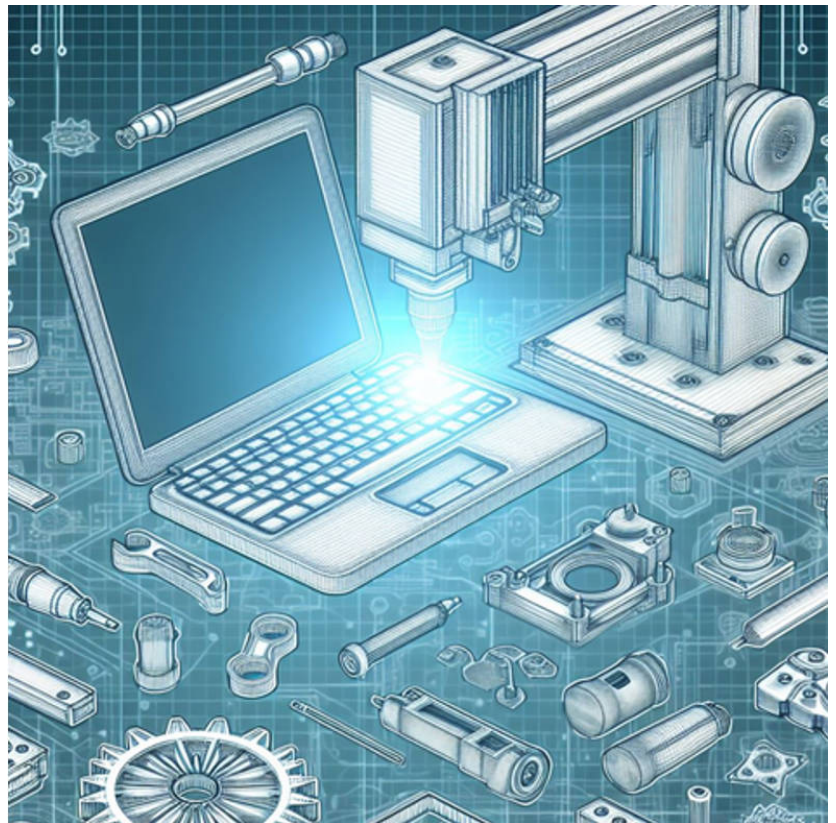
Item	RK12	RK15
Platform	– Intel® Skylake H Platform	– Intel® Tigerlake-H Platform
OS	– Windows 7 / Windows10	– Windows 10 / Windows11
Processor	– Intel® Core™ i7-6822EQ Processor – 8MB Intel® Smart Cache, up to 2.8 GHz – Intel® vPro® technology	– Intel® Xeon® W-11865MLE Processor – 8 Cores, 24MB Cache, up to 4.5GHz – Intel® vPro® technology
Chipset	– Mobile Intel® QM170 Chipset	– Mobile Intel® RM590E
Graphics	– Intel® HD Graphics 530	– Intel® UHD Graphics
Display	– 15" XGA (1024×768) LCD – Brightness (min.~typ.): Std.: 360~450 nits Optional: 720~900 nits	– 15" UXGA (1600×1200) LCD – Brightness (min.~typ.): 700 nits~ 900 nits
Memory	– 260 pin DDR4 SO-DIMM×2 – DDR4-2133, up to 32GB	– 260 pin DDR4 SO-DIMM x 2 – DDR4-3200 (ECC/non ECC), up to 64GB
Storage	– Removable 2.5" SATAIII HDD×1 – Optional Removable 2.5" SATAIII SSD×1	Sealed SSD Housing, including: – Std×1: M.2 PCIe 3.0 SSD, from 256GB~1TB – Optional×1: M.2 PCIe 3.0 SSD, from 256GB~1TB
Security	– Optional TPM 2.0	– Std. TPM2.0
I/O Port (Left)	From left to right: – PS/2×1 (KB + Mouse) – 1st GLAN RJ45×1 (Intel® I219M on MB) – USB 3.1 Gen. 1×2 – USB 2.0×1 (1.5A Fast Charging) – USB 2.0×1 – ExpressCard Slot (PCI Express)×1 – Audio Jack (Line-In/Microphone/Headphone) – Optional Serial Port DB9×2 (Default: COM3, COM4)	From left to right : – 2.5G LAN RJ45×2 – USB 3.2 Gen.2×2 – USB 2.0×2 – Audio Jack×3 (Line-In/Microphone/Headphone) – Optional Express Card slot×1 – Optional: Serial DB9×2 (Default: COM3, COM4)
I/O Port (Right)	– Flex Bay: – Removable SATAIII ODD (Trade-off with 2nd Battery)	– Optional Flex Bay (Only for FANLESS version): – Removable SATAIII ODD (Trade-off with 2nd Battery)
I/O Port (Rear)	– DC-in Conn.×1 Std.: DC-in 2 pin Optional: Military 3 pin – Serial Port DB9×2 (Default: COM1, COM2) – Docking Connector×1 – VGA Port×1 – Display Port×1 – DVI Port×1	– DC-in Connector×1 Std.: DC-in 2 pin Optional: Military 3 pin – Serial DB9×2 (Default: COM1, COM2) – Docking Connector×1 (Signals are the same as RK12 except PS/2 signals are removed.) – VGA Port×1 – Display Port ++×1 – DVI Port×1

Exploring the Latest 3D Printing Processes for Low-Volume Production in 2024

By rOGER Lu

3D printing technology, also known as additive manufacturing, has entered the stage of mass production for industrial components after one or two decades of development. Compared to traditional processes, 3D printing can be used for small-batch production of components for 3C computer products. Here are some related thoughts and advantages:

1. Customized production: 3D printing technology can flexibly meet the production needs of different models and specifications of computer components, achieving personalization and customization.
2. Rapid prototype verification: During the design phase of computer products, using 3D printing can quickly produce prototypes, enabling designers and engineers to test and modify part designs quickly, which helps improve the efficiency of product development.
3. Small-batch production: 3D printing is a form of additive manufacturing that can produce small quantities of components at different stages of production, thereby reducing inventory costs and waste.
4. Complex geometric structures: 3D printing allows for the manufacturing of complex part structures, which may be a key advantage in the design of certain computer components, especially for parts with complex or irregular mechanical structures.
5. Cost-effectiveness: For small-batch production, especially when large-scale production is not required, 3D printing can provide cost-effectiveness to a certain extent because it allows for production according to demand, avoiding the need for large inventories.



However, it is important to note that the application of 3D printing technology is still limited by aspects such as material selection, process speed, and post-processing. When choosing to use 3D printing technology for small-batch production, it is necessary to comprehensively consider the technical advantages and limitations based on specific requirements.

For small-batch production of plastic and metal components for 3C computer products, here are some suitable 3D printing processes:

Plastic components:

- a. Fused Deposition molding (FDM): FDM is a common plastic 3D printing technology suitable for producing larger and relatively complex parts. It constructs parts by stacking plastic filaments layer by layer.
- b. Stereolithography (SLA): SLA uses UV-curable liquid resin and is suitable for parts requiring high surface quality. It is suitable for small parts and components with complex details.
- c. Selective Laser Sintering (SLS): SLS uses powdered materials and stacks them layer by layer by melting the powder with a laser, suitable for producing complex-shaped plastic parts.

Metal components:

- a. Direct Metal Laser Sintering (DMLS): DMLS is a metal 3D printing technology that stacks metal powder layer by layer by melting it with a laser, suitable for producing high-strength and high-density metal parts.
- b. Selective Laser Melting (SLM): SLM also uses a laser for layer-by-layer stacking, but compared to DMLS, its application is more extensive and can be used for a variety of metals, including titanium alloys and aluminum alloys.
- c. Electron Beam Melting (EBM): EBM uses an electron beam to melt metal powder, suitable for producing metal parts with good mechanical properties, especially for components used in high-temperature and high-pressure environments.

The choice of suitable 3D printing processes should be based on specific requirements, including material characteristics, part size, complexity, and cost-effectiveness. Each process has its advantages and limitations, so careful evaluation of the product's requirements and the applicability of the technology is necessary when choosing.

As time goes on, 3D printing technology continues to evolve, with more advanced and efficient processes. New processes may improve production speed, reduce costs, and provide more material choices, meeting the needs of different computer product components. This presents an opportunity for small-batch production. MILDEF Crete Group began evaluating and purchasing new generation 3D printing production equipment in 2024, and the next phase will discuss the current status of small-batch production and explore the SLS process. Stay tuned.

Introduction to Android Device Development

By Andy Ho

With the continuous updates to the Android operating system, each version brings new features and improvements, directly impacting the hardware design and development of handheld devices. Before proceeding with the planning and development of Android devices, it's essential to understand the differences between the latest versions and their relationship with hardware.

Firstly, it's crucial to grasp the differences between the latest versions of Android. Each Android version introduces new features, improves performance and security, and fixes bugs from previous versions. For example, the latest version of Android may support more hardware functionalities, such as new sensor types or faster communication protocols. These new features can affect the hardware selection and design of Android devices.

Below, we outline the development steps for Android devices:

1. **Determine Product Requirements:** Besides understanding the functionality, performance, and exterior design of the product, it's crucial to consider the needs of the target market and users. Understanding the characteristics and preferences of the target market and users will help better define product requirements, ensuring that the design and functionality align with their needs and expectations.
2. **Choose the Suitable Hardware Platform:** Based on product requirements, we can select the appropriate hardware platform. This may involve aspects such as the software BSP (Board Support Package) provided by chipset manufacturers, processor selection, memory capacity, sensor support, among others.
3. **Hardware Design:** Once the hardware platform is chosen, we can begin hardware design. This includes circuit design, packaging design, enclosure design, among other aspects.
4. **Develop Software and Drivers:** After completing hardware design, we need to develop the corresponding software and drivers. These drivers will directly communicate with the Android operating system, ensuring the proper functioning of hardware. Typically, the BSP content provided by chipset manufacturers consists of standard AOSP (Android Open Source Project) source code, modified Embedded Linux source code, and manufacturer-specific drivers, requiring substantial source code modifications to align with hardware design. For drivers not provided in the BSP, redevelopment is necessary.

5. Testing and Verification: Upon development completion, conducting testing and verification is crucial to ensure that the product's performance, quality, and reliability meet design requirements. This may include EMC testing, environmental testing, functionality testing, performance testing, and stability testing, among others. Through these testing and verification steps, product quality standards can be ensured before market release, providing a stable and reliable user experience, thereby enhancing product competitiveness.

6. Production and Mass Manufacturing: Finally, we can proceed with production and mass manufacturing to bring the product to market.

In conclusion, when developing Android devices, it's essential to closely monitor the changes in the latest Android versions and select the appropriate hardware platform based on product requirements for corresponding design and development work.

IMARC 2023

By Owen Tung

MilDef Crete Australasia participated at the recent International Mining and Resources Conference (IMARC) exhibition for the first time after its establishment. As the mining industry has always been a sector of leading technology in Australia, mining companies from all around the world, including one of Australia's largest mining companies, BHP, as well as companies from New Zealand, South America, South Africa, Central Asia, and other countries, visited and exchanged ideas. We also took this opportunity to exhibit alongside our Australian clients, providing customized solutions, with the aim of extending the mining application of ruggedized computing devices.

Exhibiting in Australia was very fruitful, allowing us to better understand that the design of our products should better meet the requirements of this market in order to bring in more orders for the company. By exhibiting with our clients, we were able to strengthen our relationships and gain more business opportunities through communication.



“MilDef Crete’s Outlook for 2024: Introducing the Latest Intel Processor”

By Wennie

MilDef Crete asks for the highest standards of auditing for all its collaborating suppliers, this practice not only ensures product quality but also reflects our commitment to our customers. As the times progress and classics endure, we collaboration with one of the most representative partners, Synnex Technology International Corporation (referred to as Synnex) to embodies this philosophy.

Synnex is the largest information, communication, consumer electronics, and semiconductor product distribution group in the Asia-Pacific region. It provides integrated services for the supply chain of high-tech industries. Its global marketing channels cover 51 countries and regions, with business outlets in over 300 major cities worldwide. Undoubtedly, Synnex and us have been long-standing excellent partners. Over the past decade, Synnex has provided MilDef Crete with timely support in various aspects, including product technology support and firsthand information sharing.

In 2024, we are introducing the Intel Meteor Lake (Intel Core Ultra), a processor featuring a new architecture and fabrication process, along with integrated graphics. This innovation aligns with the evolving AI applications and promises unprecedented performance enhancements for laptops. Meteor Lake is also the first processor to utilize Intel's new 4th generation fabrication process, offering significant improvements in energy efficiency and delivering enhanced performance and functionality to laptops.

Through the joint efforts of MilDef Crete and Synnex (and all suppliers), we will continue delivering even more outstanding products and services to our customers and create a brighter future together.

MilDef Crete Annual Party

By Welfare Committee



The year-end party is the key occasion of the company and is also the most anticipated event by the employees. In the event, the elegant host successfully brought the event to a cheerful atmosphere.

As is customary at MilDef Crete, that is a specialized event to dedicate the groups of senior employees who have been serving the company for over a decade. This is the best approach to acknowledge and express gratitude for their contributions to the development of the company.

Meanwhile, the welfare committee has prepared a variety of programs to boost the atmosphere. The most spectacular magic performances and singing shows have certainly created an exciting mode. The magician's eye-catching tricks brought surprises and joy to the event. Furthermore, the year-end party was also an extra pleasurable opportunity for the employee, not only to enjoy the pleasant vibes yet to strengthen the bonds among each other.





Overall, the year-end party is a celebration of the fruitful harvest from the previous year. Through this event, we hope that every employee can receive blessings and warmth on this special day and be ready to accept the upcoming challenges.

5-Day Company Trip in Bangkok, Thailand

By Welfare Committee

Happy outing!

To recognize the employee's dedication, the welfare committee has planned an enjoyable vacation featuring a variety of exciting activities.

- The Siam Premium Outlets is a department store that was established in the middle of 2020 and features over 200 major brands, including Burberry, Balenciaga, and Ferragamo, attracting a huge number of visitors.
- The Great & Grand Swiss Destination in the city center is a theme park popular with tourists due to its gigantic desserts and lovely environments.





- The Pattaya All Star is the cruise ship that is exclusively permitted by the Pattaya Maritime Authority to be operated in Pattaya Bay. The cruise offers premium services and a cozy environment where passengers can enjoy excellent cuisine and breathtaking scenery onboard.
- Traditional Thai massage is a highly recommended activity in Bangkok, which the Healthland is a well-known franchise brand that provides professional massage services.



- The Thai Cultural Estate, launched in 2018, allows visitors to experience the most authentic Thai culture, including Thai cuisine, Thai clothing experiences, and activities such as the floating market.
- The Tiger Park in Pattaya allows visitors to experience close interaction with the wild tigers and other animals.





- The Maeklong Railway Market is a traditional market that is popular for being located next to the railway tracks. The attractive point is that sellers will swiftly pack up as the train approaches and then resume their regular business after the train passes.
- The After the Rain Coffee, located in Phetchabun Province, is a tropical rainforest-themed café. The guests can travel on a small boat along the river, experiencing a unique dining environment.

This is a long-anticipated company trip after years of the pandemic outbreak. The employees have truly enjoyed this pleasant trip.

Emergency Response Drill

By Andy Shih

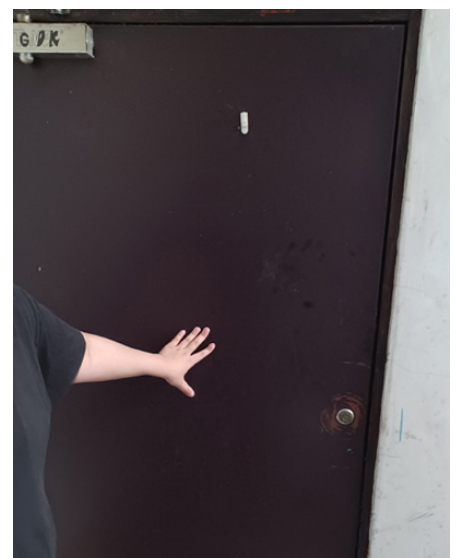
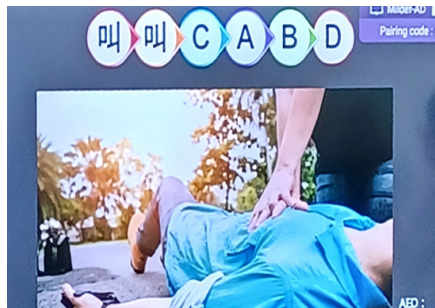


The organiser, the Occupational Safety and Health Department, has introduced an emergency course to communicate critical information about various types of emergency situations, including typhoons, chemical leaks, earthquakes, and fires. In the event of an emergency, everyone must respond immediately to the emergency first aid rescue, such as by performing CPR and using an AED.





All areas of the company are planned with emergency escape routes. Firefighting facilities and equipment are allocated appropriately as well. During the course, the organiser not only presented the evacuation plan but also carried out an evacuation drill.



During the evacuation simulation, the organiser emphasized the importance of keeping fire doors completely closed and crouching down when evacuating from the fire scene. When reaching a safe area, the assigned person should ensure the head count to assure everyone's safety.



COMPANY INTRODUCTION

MilDef Crete was founded at 1990, we fulfill ISO 9001 and ISO14001. MilDef Crete focus on rugged computer market. We have complete product line including rugged laptop, tablet, mobile device and these products could be use in fields including military, public safety, public utility, on-site service, petroleum and natural gas, telecommunications, transportation, manufacturing, mobile commerce, etc.

MilDef Crete's products sold to the whole world by the brand MilDef. We have transnational team and several sites at Euro, North America and China. We provide our customer quicker and better service by co-work with our distributors and dealers. We keep focus on innovation and product development to provide best products for professional usage. We also have best R&D team for any customized demand. Our products pass various standards including MIL-STD-810 and International Protection Marking (IP54, IP65, IP67) and could fulfill special request such like MIL-STD-461, ANSI or ATEX directive.

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