

# MILDEF CRETE

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## Corporate Newsletter

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## Introduction

By Eric Lee,  
Associate of Production Department

In order to improve the stability of product quality and increase the self-manufacturing ability, MilDef Crete expanded the establishment of a "clean room" on the 4th floor of the factory in April 2020, which can eliminate airborne particles, harmful air and other pollutants within a certain range. Indoor temperature and humidity, cleanliness, indoor pressure, air velocity and air distribution, noise, vibration, and static control are within a certain range of requirements to improve LCD particle problems. Air bonding and optical bonding can be done at present, and it can effectively reduce labor. At the same time, speeding up the shipment to meet the customer's order demand. From 2021, we plans to add 3D Solder Paste Inspection (3D Solder Paste Inspection) and Automatic X-ray Inspection (Automated X-ray Inspection) to the SMT process. The former can accurately detect low solder bridge defects and Board bend

## Introduction

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compensation is performed to eliminate PCB process errors. The latter can make the quality control process faster and more sophisticated through real-time monitoring, effectively improving the quality of the SMT process. Another important process plan for this year: The MES system and automated testing to transform the physical production requirements such as work orders, manufacturing orders, production equipment, products, materials, and production areas in the production process into controllable data and processes. Establish a complete production history and move towards the goal of Industry 4.0. Constructing a high-quality production environment, insisting on quality first, and continuous improvement are our production beliefs. It is our responsibility to strengthen personnel and technical training and provide customers with the best service. We will uphold the ISO quality policy to achieve our customers with the highest satisfaction.

## NEW Product Launch RB14

Mildef Crete released a new device — Rugged Workstation RB14 in Q3 2020.

RB14 is configured with Intel® Xeon® E-Series processor— Intel® Xeon® E-2176M processor. Intel® Smart Cache 12 MB and Max. Turbo Frequency up to 4.4 GHz give the device a high computing performance and fast response capability. Besides, Intel® Vpro Technology enables customers to integrate specific chipsets and enhance their remote access to the workstation for management.

Standard RB14 is equipped with slots for SATAIII SSD x 4 and DDR4 SO-DIMM x 4 and the freedom of choice is given to customers. Customers may have 1T SATAIII SSD x 1 with 32GB DDR4 SO-DIMM x 1, or have storage and memory capacity up to 4T and 128GB so not to be limited and affected by performance while the speed becomes smoother. RB14 is designed to support three operating systems— Windows 10, Windows Server 2016, and Windows Server 2019. End users may choose the OS depending on their needs.

Regarding the battery endurance, this workstation is paired with BRWB3B x 2 which is a 10.8V/6900mAh lithium ion battery pack. According to the test result based on JEITA VER.1, the device can stand up to 9 hours. Optional BRWB3C is another 10.8V/5000mAh lithium ion battery pack for the devices to be successfully operated where the temperature is as low as -30°C.

Additionally, apart from the built-in Intel® UHD Graphics P630, the nVIDIA® GeForce GTX1050 4GB graphics card is an alternative for customers. This discrete graphics card offers a better display, performance, and stability. Furthermore, with the evolution of network and increasing demands, the R & D designs a 10GLAN Card for RB14, enabling a fast and reliable transferring performance. If this function is preferred, please contact TM for further customization.

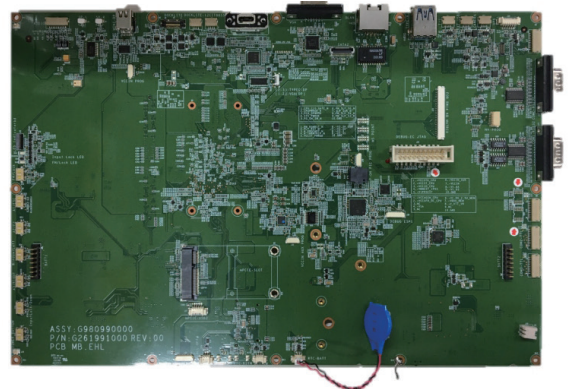
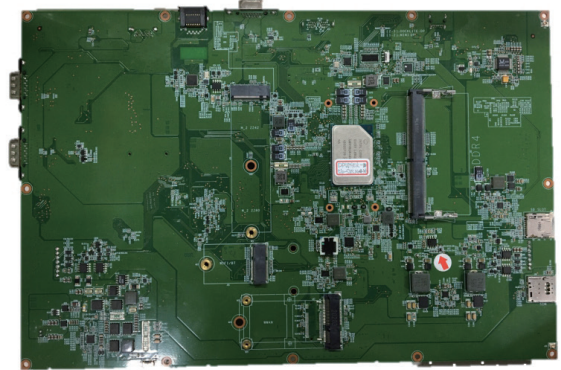


## Elkhart Lake Early Access Program

Mildef Crete products used to fall behind with Intel platforms for 1~2 generations. This year, the R & D department ("R & D") decide to participate in the Intel EHL early access program ("EHL"), aiming to keep the pace simultaneously with Intel. Despite that R & D, this time, are approved only with document supports, EHL in Mildef Crete has entered the engineering verification tests (EVT) phase. From having design concerns in the very beginning to now software and hardware engineers in charge are partnering up, proactively debugging and fixing the design issues found in big board one by one, and at the same time checking if the board complies with the specification.

With years of experience, engineers have accomplished approximately 80% of function debugs and verifications, and the rest of the debugging is to be in cooperation with and receive assistances from Intel and 3rd parties. For Intel, the Elkhart Lake platform is estimated to be in mass production in 2021 Q1; as for Mildef Crete, we will kick off a new project in 2021 Q2.

R & D plan to configure the Elkhart Lake platform with rugged handheld computers, in replacement of DB7 released in 2015. With multiple important components upgraded, the performance is undoubtedly much greater than the previous generation. The drawing below is merely a preliminary conceptual version, and this schematic diagram simply provides customers a better understanding on our next rugged handheld computer. Yet, the appearance is to be modified by the future specification is finalized after kickoff.



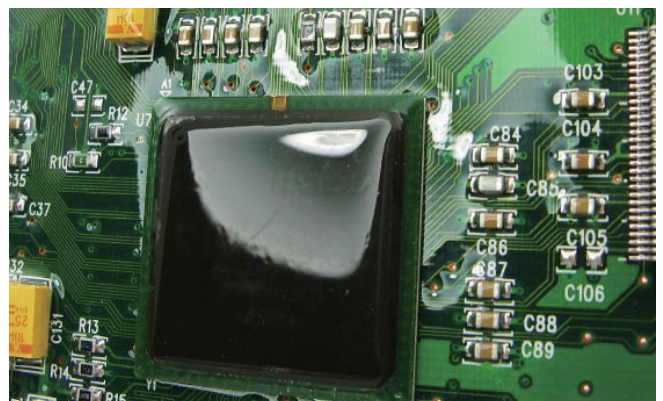
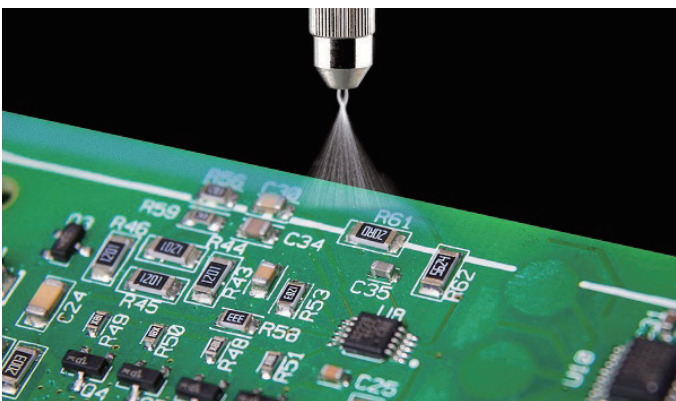


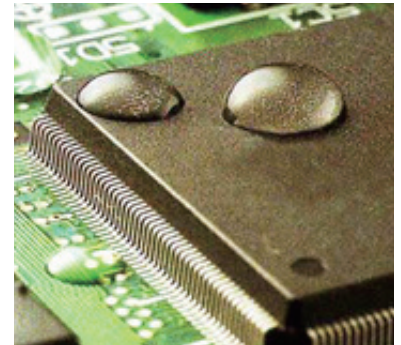
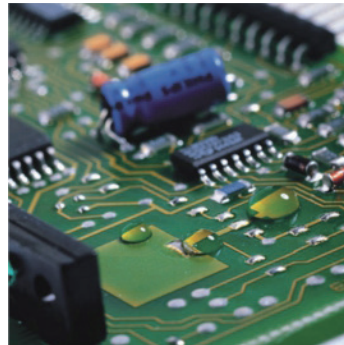
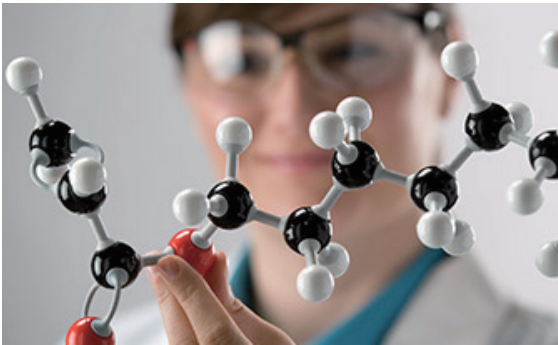


## NanoCoating Introduction

NanoCoating, also called electronic coating, is a process applied to printed circuit board to serve as a protection for electronic devices against moisture, fouling, dust and chemical pollutants. It, additionally, acts as insulation keeping the solder joints and conductors from air and continuous corrosion.

With the pros mentioned above, Mildef Crete adopts NanoCoating to all our self-manufactured PCBAs, except gold fingers, electronic connectors, expansion slots, and double-sided adhesives, so to avoid the electronic components from direct exposure to environments where are concentrated with chemical gases, highly polluted, dusty, as well as under extreme temperatures.





Transparency and low viscosity make NanoCoating more appealing comparing to that of the conventional acrylics and the costly silicone. As the coating gets dry, it becomes a protective layer for each component and substrate, preventing the printed circuit boards and electronic parts from wet corrosion; it also enables panel displays to be easy to clean and stain resistance. Furthermore, NanoCoating increases production efficiency and product yields, and it is compatible with the existing equipment with the techniques of dipping, spraying, brushing, and needling. And operators are guaranteed with more safeness as its non-flammability and low-toxicity. Given the advantages, NanoCoating without a doubt is the best choice for the stability of MIL-STD-810.

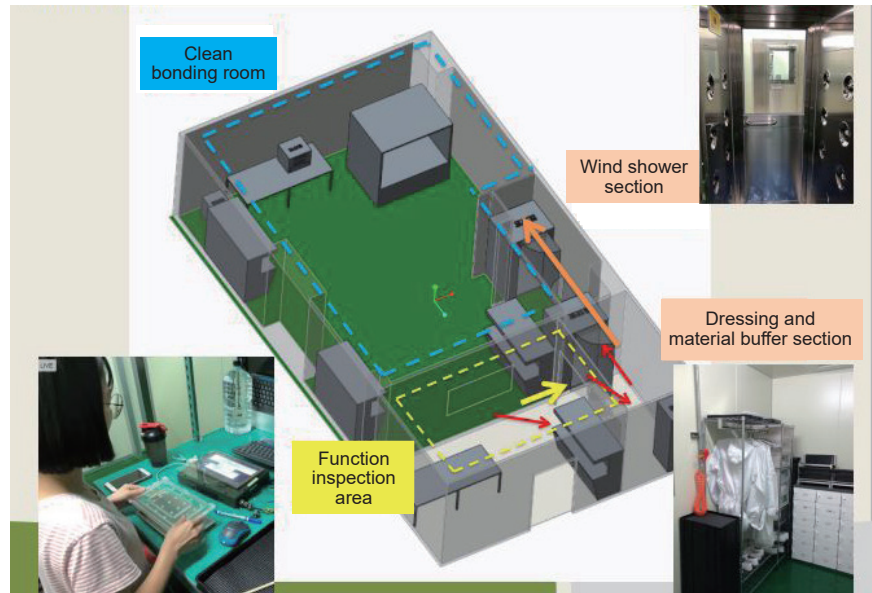


Regarding the aspect of safety and sustainability, applying NanoCoating does the best to our ecosystem, as it has a merely minimal impact on the environment, it contains no volatile organic compound, and it does no harm to the ozone layer, that is to say the ozone depletion potential (ODP) is essential zero, and the global warming potential (GWP) is rather low. NanoCoating is safe for our mother earth.

# MilDef Crete LCD laminating process introduction

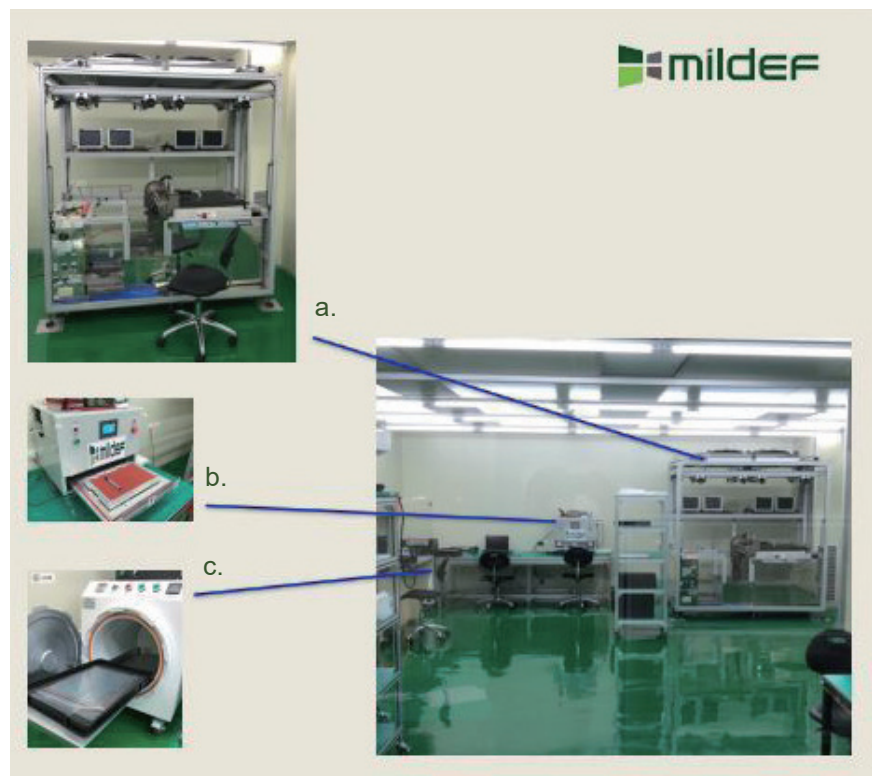
By Denis Wu, Kaifu Cheng

In recent years, MilDef Crete's LCD lamination suppliers have encountered many supply crises due to their business models, yield problems, etc. In 2020, MilDef Crete established an LCD lamination room to effectively control the small quantity of various orders. The following briefly introduces the types of hardware equipment and lamination process of the LCD laminating room:



## 1. Equipment:

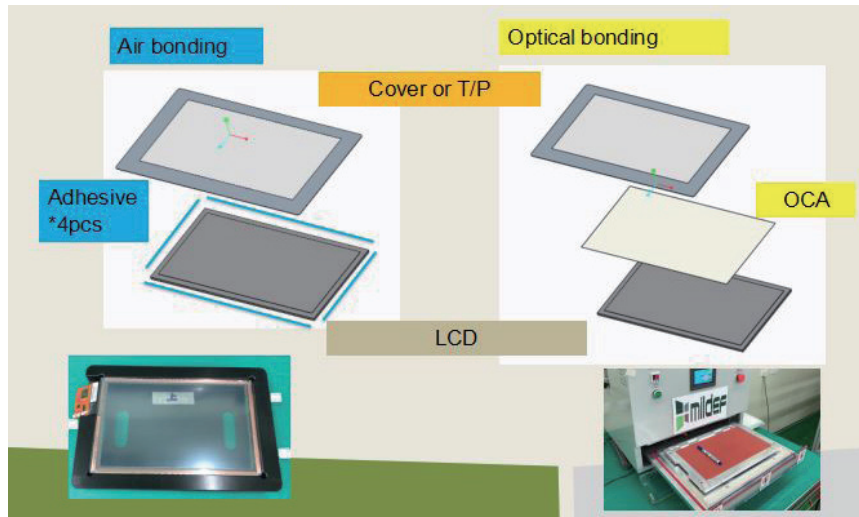
- A. Roller laminating machine  
(Laminating machine for turning plate)
- B. Vacuum laminating machine
- C. Pressure deaeration machine





## 2. Types and introduction of bonding process

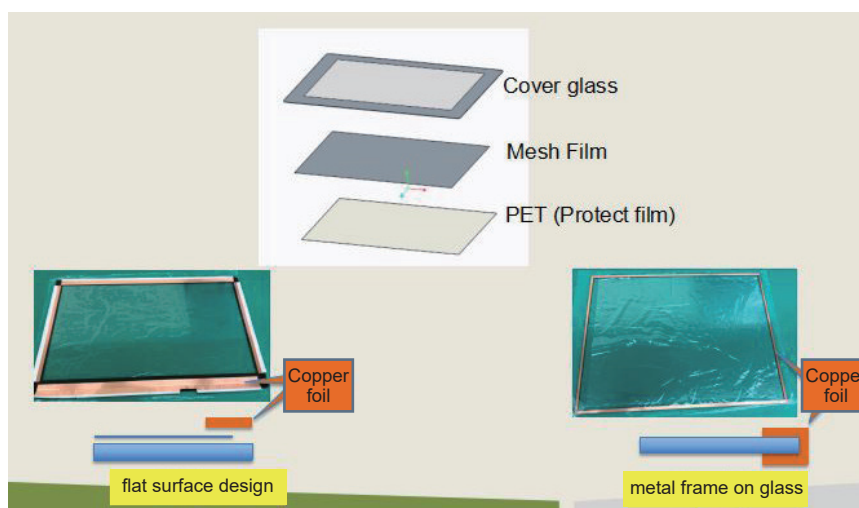
### A. Material structure difference between Air bonding and Optical bonding



### B. Comparison between Air bonding and Optical bonding

	Air Bonding	Optical Bonding
Advantage	<ol style="list-style-type: none"> <li>1. Simple process</li> <li>2. Easy to do the rework</li> <li>3. Low cost</li> </ol>	<ol style="list-style-type: none"> <li>1. Sunlight readability is better</li> <li>2. Increase structural strength</li> </ol>
Disadvantage	<ol style="list-style-type: none"> <li>1. Not helpful for optical properties</li> <li>2. Not able to avoid objects in the LCD iron frame from falling into the AA area</li> </ol>	<ol style="list-style-type: none"> <li>1. High cost</li> <li>2. High rework cost</li> <li>3. Cumbersome process</li> <li>4. OCA variation is difficult to control</li> <li>5. MOQ of OCA is high, life-cycle is around 6 months</li> </ol>

### C. EMI Mesh lamination







## Fortinet hardware firewall, a new generation firewall

By Vincent Jian

In view of the frequent and diverse network attacks in recent years, coupled with a variety of ransomware and new types of viruses, Trojan horses and other hazards. The original hardware firewall NetScreen used by MilDef Crete has a only basic function. In addition to the longevity, the updated function still cannot meet the current needs, and the protection against new types of network attacks is limited. In order to be able to resist network attacks on the front line, it can also resist and delete some viruses, worms and harmful web pages. Therefore, this multifunctional firewall, Fortinet hardware firewall, is imported, a new generation firewall. The new multifunctional firewall system, economical price and high-performance performance, can pass the security protection of the firewall, and make the system quickly identify and prevent various attacks. Firewall, VPN, anti-virus, intrusion detection/prevention, website filtering, anti-spam, anti-spyware and network traffic control functions! Effectively prevent threats from emails, viruses, worms, hackers and illegal webpages. In addition, the scalability and easy deployment of this system are also advantages. It can be built in the core network to protect the assets of MilDef Crete.

## Touch Workstation Computer Setup

By Vincent Jian

In response to the imminent introduction of the MES & PLM system, assisting Crete's electronic digitization of production processes, and upgrading and improving the hardware and equipment. The improvement will effectively help optimize the production line's operating system, gradually replacing traditional keyboard and mouse input with touch control, saving unnecessary operating hours for employees, simplifying the process, and reducing the probability of occupational diseases caused by poor posture.

With the most friendly working environment, reduce employees' eyes and body pain caused by poor posture. Doing a good job in the goal of continuous optimization of occupational safety and production line processes can also improve efficiency and effectiveness of the production .



The computer is operated high by the suspension bracket, which efficiently saves desktop space and provides the most comfortable viewing angle for employees.



The touch operation is simple and intuitive, which can save unnecessary manual input time and simplify the operation. procedure.



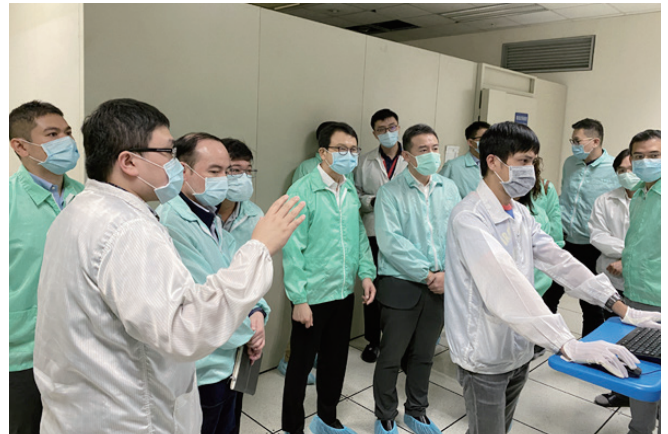
# 2020 Transcend Neihu General Factory

## Visiting Itinerary

By Martin Bo

In October 2020, at the invitation of Transcend's general manager, I went to the Transcend factory in Neihu, Taipei to visit the production process of Transcend products. Transcend has set up liaison offices around the world, but its production plant is only set up in Taipei. In order to strictly control the quality of R&D and production, Transcend has made this bold layout and planning rigorously from the beginning.

When we visited the production line, we saw Transcend's rigorous control of the production process, whether it was the establishment of the back-end ERP system and the 16 production line production plants SMT, IQC, IPQC, Environmental test, Function Test, FQC, and finally Packaging and shipment are all based on Transcend's demand development system and with AOI identification for automated production management testing and monitoring. Many of the highest standard equipment in the industry are also used for quality control. Such as SMT lead-free process nitrogen reflow furnace, use XD7500VR Jade FP X-ray inspection machine to confirm SMT PGA process, firmware test automatic update module, product wide temperature environment test, AOI automatic packaging and defective product screening. Each station is equipped with a camera lens to record and track, and if there is a problem, it can be played back for analysis and review at any time. This is also in line with Transcend Factory's current production process from physical automated production to network system automation, which is what the industry calls Industry 4.0.





Through the production line automation technology, the product can be connected and intelligently controlled from the ERP order placed by the business to the production station through the background control operation equipment, and data collection and analysis can be implemented. The operation process requires almost no manual intervention, greatly improving production efficiency and yield, allowing Transcend to manage data intelligently, and to meet different customer needs to achieve customized requirements.

After a short afternoon tour and exchange, I have a deep understanding of Transcend's determination to pursue rigorous products. There are many aspects that MilDef Crete can learn from future production management. MaFi638 through a Taiwan agency after a number of product trials. It will be delivered in March, 2020, and education and training will be carried out in April. The machine can be used in many ways. It has also been tested to establish various BGA parameters.



# Metabolic Syndrome and Human Factors Guidance

By Andy Shih

The so-called metabolic syndrome is if it meets any three of the following five items, it is suffering from metabolic syndrome: first, abdominal obesity, Taiwan's standard is that men's waist circumference exceeds 90 cm and women's waist circumference exceeds 80 cm; second, blood three acid Glycerides exceed 150mg/dl; third, high-density cholesterol (good cholesterol) in the blood, less than 40mg/dl for men and less than 50mg/dl for women; fourth, systolic blood pressure exceeds 130mmHg, diastolic blood pressure exceeds 85mmHg; fifth, Fasting blood glucose is greater than 100mg/dl. As a result of the company's routine health check of colleagues this year, it was found that about 50 colleagues belonged to the high-risk group. Therefore, lectures were arranged to remind colleagues to pay more attention to their health. Metabolic syndrome refers to the "combination" of some diseases. It is not a disease.

However, metabolic syndrome is the general term for risk factors that easily lead to cardiovascular diseases, so if there is metabolic syndrome, then the chances of developing cardiovascular diseases, such as angina, myocardial infarction, stroke, etc. will greatly increase 20% of the risk factors for metabolic syndrome are inherited, and 50% are caused by bad lifestyle habits, such as endocrine disorders caused by stress, smoking, drinking, people with low activity levels, and people with poor diet (low fiber, high sugar, high oil). Therefore, you must pay special attention to your living habits and improve your eating habits. Implement the "five tricks to prevent metabolic syndrome." Choose healthy food, exercise more, check regularly, find and treat early, avoid smoking, drink less, and lose weight; you can keep healthy and have a happy life.

At the end of the lecture, the doctor reminded that workplace safety still needs to pay attention to many aspects. For example, when moving objects, avoid excessively stretched postures and move as close to the body as possible to prevent waist injury; when moving objects in higher places, make good use of equipment Such as ladders, stackers, etc. to assist operations. If you need to carry heavy objects frequently, wear a waist protector.

The company arranges health checkups, handles related health lectures, pays attention to the prevention of worker injuries, arranges on-site operation supervision from time to time, and provides timely operation suggestions to ensure the health of all employees.

## Educational promotion: Prevention of illegal infringements in the performance of duties.

By Andy Shih

On 2020/11/03, the supervisor's regular meeting time, carry out the education and promotion of "Prevention of Unlawful Infringement in Performing Duties". In accordance with Article 6 Item 2 of the Occupational Safety and Health Law, the company has formulated a plan to prevent physical or mental violations due to the actions of others in the performance of its duties. The company formulated the plan in May 2020 and completed the revision in October of the same year. After this education and training, we used our mobile phone to scan the QR Code to fill in the questionnaire and analyze the output report as the basis for future improvement. A total of 149 colleagues

participated in the education and training of "Prevention of Unlawful Violations in Performing Duties", and 141 of them completed the "Questionnaire on Violence Hazard and Risk Assessment" by scanning the QR Code online. Except for a small number of incomplete entries or invalid uploads, the calculated completion rate is 94.6%. Among the valid questionnaires, 89.3% of colleagues fully understand the purpose and focus of this education and training. The content of illegal infringement includes personnel colleagues, related customers, supervisors and subordinates, which may cause friction due to people, events, time, place, and things. Through this education and promotion, there is no conflict between internal and external departments, only good communication, no opposition, an integrated team.



## Outstanding employees of the year

By Rita Hsu and Matt Ho

Rita Hsu, the deputy manager of the purchasing department, and Matt Ho, the head of the quality assurance department, presented a report to promote the outstanding employees of the department in 2020. The deeds of the two outstanding employees are as follows:

### Outstanding Staff in Purchasing Department: Neko Chen



**Job title:** Switchboard General Affairs

**Work duties:**

General affairs such as switchboard, stationery, office equipment, air-conditioning, and official affairs management

**Excellent deeds:**

Neko arrived in September 2018 and performed well in the general affairs position. She is proactive and has excellent coordination skills. General affairs are very complicated. Neko is always patient when coordinating public affairs and carrying out general affairs procurement tasks, constantly communicating and coordinating bargaining, and carefully reorganizing general affairs and establishing contract systems. Neko's proactive role in general procurement is to help the company save NT\$2 million in cost, which is very outstanding.

### Outstanding Staff of Quality Assurance Department: Andy Hung



**Job title:** IQC team leader

**Work duties:** incoming inspection Excellent

**Excellent deeds:**

Andy joined the company in April 2005 and has the professional knowledge and judgment ability of institutional materials. In 2019, when the model RK12 entered mass production, he encountered various institutional material problems. He can quickly assist in the handling of abnormal problems of institutional materials on the production line. The production line resumes production in the shortest time to avoid affecting the order delivery date. It also controls and labels the LCD and bonding conditions (white marks, bubbles, bright and dark spots) of various brands of different brands when entering the factory to meet the different shipping needs of various customers. Andy takes the initiative to formulate various material specifications with suppliers, so that suppliers can smoothly produce and deliver them to the factory on-line production to meet the business delivery deadline. Andy has good communication and coordination capabilities, and has good interaction with suppliers and various units in the factory, which makes the department work smoothly and very well.



## Company Employee trip

By The 22nd Welfare Committee

COVID-19 is raging around the world. We are happy to be in Taiwan. 2020/9/19-9/20 Go to Taichung to eat, drink and have fun!

From the 9/19 collection time, we started the two-day and one-night trip to Taichung. The first stop in the south is the Overnight Salt Museum, where a unique seawater hot spring stream is built with warm sea water. In the dense tree shade and rockery scenery, tourists can enjoy the fun of foot bathing in the wild stream for free, but the weather is too hot, everyone lacks interest! Lunch at Taichung's famous Yamato House Japanese cuisine, fresh and delicious raw fish dishes, powerful anhydrous seafood pot, after a full meal, go to Taichung Innovation Park. The Taichung Creative Park is a vast park clustered with 100-year-old industrial sites and historical buildings. It has undergone many years of planning and reconstruction. Today, it is a cultural and creative stage that combines history and modernity with romance and cutting-edge. Animation and Painted Alley is also very exciting; Audit Village was formerly the staff dormitory of the provincial government, with a history of about 40 years. Now there are several well-preserved old dormitories with small shops, which have transformed into a cultural and creative tourist attraction. Many of my colleagues have often traveled to Taichung before, but they have never been to these scenic spots. It turns out that Taichung still has such an interesting itinerary!

In the evening, there is also a free-to-attend Fengjia Night Market. Fengjia Night Market is famous for its novel and interesting snacks. After dinner, some of the strong colleagues continue to fight at the Fengjia Night Market. Other colleagues who did not participate in the night market return to the hotel in groups to have a party or Rest individually. The next morning, there is also a free trip: Miyahara Ophthalmology. Miyahara Ophthalmology used to be like a ruin. After the sunrise took over, the appearance of the building was retained, and the internal structure was renovated and decorated, which became a big selling point. Cheers to the past. Inside is a nostalgic ice cream store. In the afternoon, we will go to the largest outlet in central Taiwan-Mitsui Port of Taichung for a stroll.



The ocean is the concept, combining nautical tourism, fashionable life, and entertainment experience. There is also a sea view Ferris wheel that is 60 meters high in Taiwan. Wonderful, but unfortunately we don't have time to stay till night and then we will move on to the next itinerary-Chuikun, a famous product in the garden. It's rare that there are shopping spots for staff trip, but Chuikun dim sum has always been a favorite of everyone. In the past, group purchases were needed, but now they go directly to the scene and buy enough at a time. When colleagues get on the bus again, they all have big bags and small bags. The last stop of this trip is the most popular steamer banquet in recent years.

After two days, from the first day's lunch and dinner to the second day's lunch, the meal feast, to the last steamer banquet, everyone is a little overwhelmed. It's too heavy for our health. Ah, it's time to exercise and lose weight after this trip! Thank you to all the colleagues who participated. We look forward to the next trip of the staff tour!



## 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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