

# LONG LIFECYCLE MANAGEMENT OF INDUSTRIAL COMPUTERS:

A PRACTICAL GUIDE



## WHAT IS LONG LIFECYCLE FOR INDUSTRIAL AND EMBEDDED COMPUTERS?

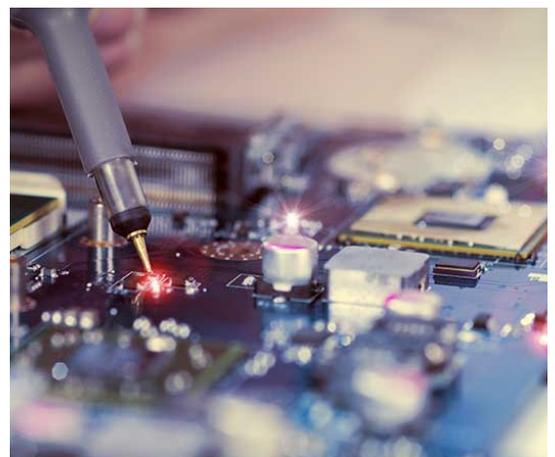
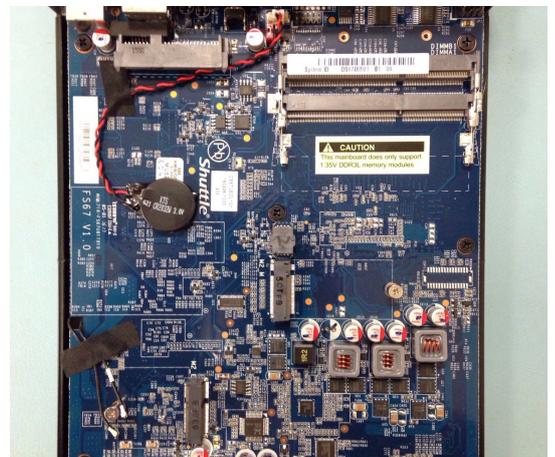
For an OEM or Independent Software Vendor (ISV) that integrates computer hardware into their final product, one of the largest problems, the one that keeps them awake at night is the topic of the product lifecycle. To an outsider, it may seem simplistic, but a survey of design engineers across 6 different industries reveals that this problem is a common denominator.

## ABOUT LIFECYCLE

Before getting into the details, it is worth clearing up a common misconception regarding the term lifecycle.

Lifecycle does not refer to the length of time that a product will last without needing to be repaired or replaced. Rather, lifecycle refers to the length of time that a manufacturer has committed to continue building and providing support for a product.

Mean time between failures (MTBF) is the term which describes the average time that an individual computer or component will last before it fails. It's a small distinction, but it can save a lot of headaches when you know exactly what your vendor is promising.



# WHY DOES LIFECYCLE MATTER?

The top 3 reasons why lifecycle is so important to OEMs and ISVs are:

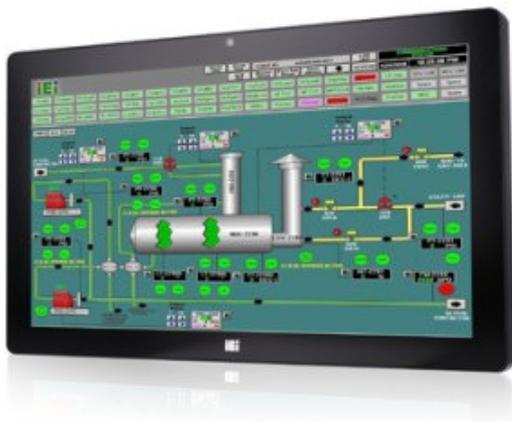


## 1. MINIMIZE COSTS ASSOCIATED WITH PRODUCT REDESIGNS.

Product changes can have a cascading effect of incompatibility resulting in further product redesigns at best, and a higher incidence of failures in the field at worst.

## 2. MAKE FIELD SERVICE MORE MANAGEABLE.

Having a product SKU with a BOM that remains the same for 5-7 years makes field service substantially easier. In contrast to a BOM that changes yearly as components go end of life.



## 3. MINIMIZE EXPENSIVE PRODUCT RECERTIFICATION.

Depending on the industry, component changes can result in the need for a long and costly product recertification process.

Depending on your industry, I'm sure that you can think of many more.

## CUTTING THROUGH THE SALES AND MARKETING BUZZWORDS

In the world of industrial PCs (IPC), whatever buzzwords people use to describe them, components could be safely broken down into 3 categories which are largely determined by the computer's processor and manufacturer commitments:

### Commercial Lifecycle

The lifecycle of the average consumer product. They can have a lifecycle as short as 6 months, to a maximum of about 2 years. And that is assuming you purchase the product at the start of its lifecycle.

### Embedded Lifecycle

The most common long lifecycle option offered by manufacturers. It is based on Intel's embedded CPU options and typically lasts about 5-7 years. This is fine for most OEMs.

### Extended Lifecycle

This final lifecycle option includes certain embedded Atom®, Celeron®, and ARM-based processors. Extended lifecycle products can last anywhere from 10-15 years and they are the ideal solution for all lifecycle issues.

# LIFECYCLE STAGES

## STAGE 1: DESIGN

- Determine PC and Component requirements
- Request Lifecycle Roadmaps
- Product Testing
- Vendor Selection
- Prototyping
- System Image Development

## STAGE 2: PRODUCTION & DEPLOYMENT

- Begin full production
- Request Product Change Notifications (Vital)
- Request BOM Freeze if Required
- Delivery and Deployment to End Users

## STAGE 3: OPERATIONS & SUPPORT

- Supply Chain Management
- Inventory
- Support
- Software Updates
- Firmware Updates/Version Control

## STAGE 4: MIGRATION PLANNING

- Be notified of last time buy dates
- Research latest technology and customer requirements
- Begin the new design cycle

## STAGE 5: LAST TIME BUY

- Forecast how much product you will need to last through the rest of the design cycle.
- Consider an additional quantity for service and support
- Purchase a supply that will fulfill these requirements
- Utilize blanket orders and supply chain management from your vendor to make this as seamless as possible.

# HOW TO MAXIMIZE PRODUCT LIFECYCLE

- **Lifecycle planning begins at the beginning of your design cycle**

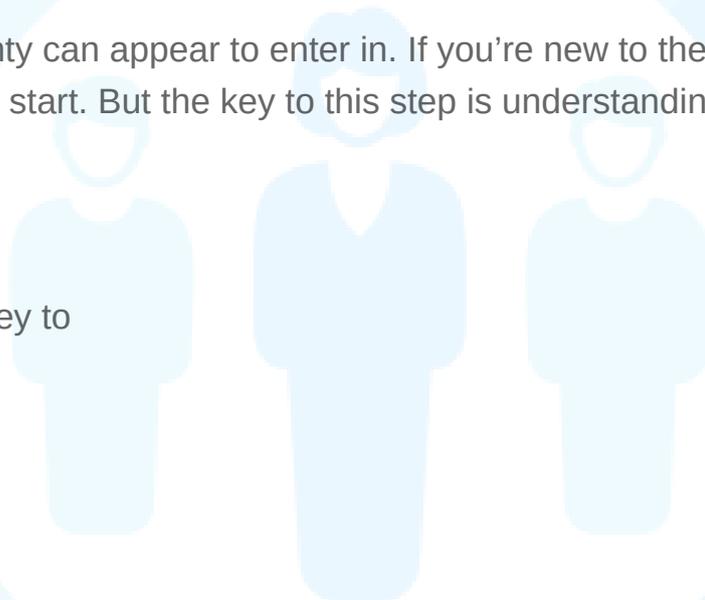
Lifecycle is a consideration that needs to be taken into account at the beginning of a design cycle. Even waiting until you begin prototyping is FAR too late to begin to take this into account. During the process of determining the PC and components required for your application, it is important to also look at the lifecycle required to be able to support your product in the field and reduce the need for redesign/recertification.

When selecting a component, consider when the product was first released. A 7-year lifecycle won't do you any good if the product was released 5 years ago.

## 1. SELECT A TRUSTWORTHY VENDOR

This is the first area where uncertainty can appear to enter in. If you're new to the industry you may not know where to start. But the key to this step is understanding 2 things:

- It's all about risk mitigation 
- A proper vendor evaluation is a key to effective risk mitigation



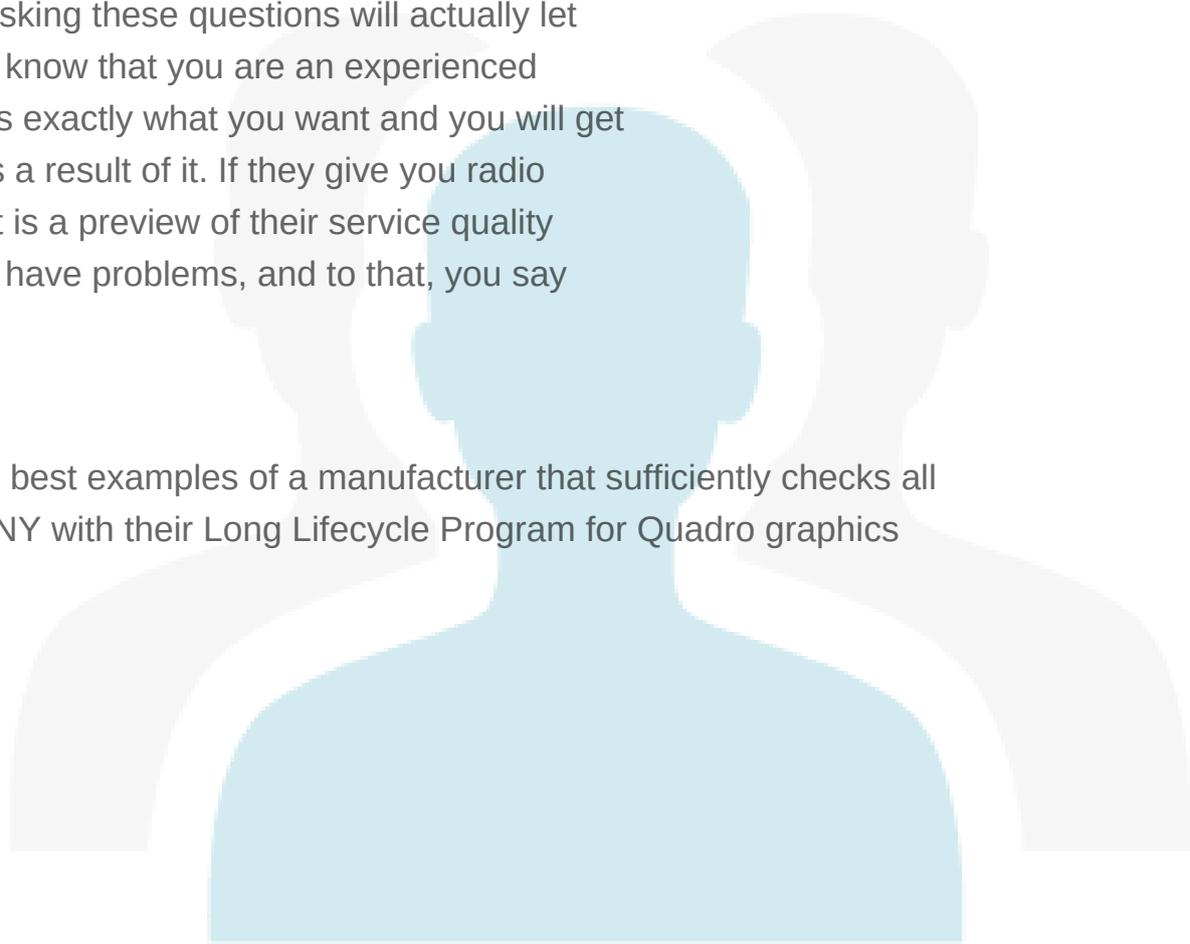
## 2. EVALUATE VENDOR LIFECYCLE CAPABILITIES

A proper vendor evaluation should be redone at the beginning of every design cycle. The track record is one of the most important factors in determining the trustworthiness of a supplier but it is not the sole factor. Just because a supplier was able to offer one product within your lifecycle requirements, does not mean that all subsequent products they sell will meet your standards. There are a series of questions that need to be answered and pieces of information that need to be provided that are absolutely vital in determining the true lifecycle of the product that your vendor is offering.

Do not be shy in asking these questions.

Do not let the vendor's salesperson provide vague answers in order to slip their way out of putting in the actual work required to answer your questions. As an added benefit, asking these questions will actually let the salesperson know that you are an experienced buyer that knows exactly what you want and you will get better service as a result of it. If they give you radio silence then that is a preview of their service quality should you ever have problems, and to that, you say good riddance.

Probably one of the best examples of a manufacturer that sufficiently checks all of these boxes is PNY with their Long Lifecycle Program for Quadro graphics cards.



# VENDOR LIFECYCLE EVALUATION CHECKLIST

	1	2	3	4
<input checked="" type="checkbox"/> Does the product offered from the vendor meet your lifecycle requirements?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input checked="" type="checkbox"/> What is the vendor's track record with providing long lifecycle products?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input checked="" type="checkbox"/> Can the vendor provide a lifecycle roadmap for the product?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input checked="" type="checkbox"/> Can the vendor provide any promise or guarantee of lifecycle, written on company letterhead?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input checked="" type="checkbox"/> Does the lifecycle of the product depend on some internal component such as an Intel processor or chipset? If so, can they provide a roadmap for these components?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input checked="" type="checkbox"/> Does the vendor provide Product Change Notifications (PCN)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input checked="" type="checkbox"/> Does the vendor provide last time buy dates well in advance of product End of Life?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input checked="" type="checkbox"/> Does the Vendor offer firmware version control?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input checked="" type="checkbox"/> Does the Vendor offer a controlled BOM?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## RATING SCORES:

1 DOES NOT MEET REQUIREMENTS

2 PARTIALLY MEETS REQUIREMENTS

3 MEETS REQUIREMENTS

4 EXCEEDS REQUIREMENTS

### 3. PLAN FOR MIGRATION AND LAST TIME BUY DATES

One of the hallmarks of embedded computer lifecycles is the last time buy date. It was mentioned in the above [Vendor Lifecycle Evaluation Checklist](#), so it deserves some time here. The 'last time buy date' is essentially what it says on the tin: the final date on which you can purchase the product before it finally goes end of life (EOL). When purchasing embedded computers and components, it is standard practice for vendors to announce the last time buy date 3-6 months in advance. **To do anything less would put OEMs and ISVs in a very bad situation in which their next design cycle is severely rushed.**

### 4. FORECAST AND PLACE BLANKET ORDERS

Blanket orders with stock agreements are a common way to extend this buffer by another 6 months to 1 year. By forecasting how many products that you will be needing from the last time buy date through to the end of your next design cycle, you can place a blanket purchase order with your supplier, agreeing to take scheduled shipments of the EOL product over an allotted period of time. This has the double benefit of a lower cost due to a higher quantity commitment, while also increasing the buffer time from 3-6 months to 1 year or more. During forecasting, it is also advisable to take into account any parts you may need for field service. After the last time buy date, it becomes incredibly more difficult to purchase the EOL product.



## 5. PREPARE EMERGENCY MEASURES: OBSOLETE PRODUCT SOURCING

So what do you do when the unimaginable happens? Your Vendor EOL'ed the product far earlier than promised or for some reason or other they never notified you of your Last Time Buy date, throwing you from normal business operation to DEFCON 1 so fast that you get whiplash. If you haven't gotten a chance to start your next design cycle, then these are full emergency measures. You've entered the realm of Obsolete Product Sourcing, which is unfortunately more art than science. There are a few things that you can try, but they are by no means certain:

- Ask your vendor if they can produce another run. If they can, there will definitely be a minimum order quantity. If you're lucky, this will be within a reasonable amount.
- Contact every distributor or reseller of the product that you can find to see if they have excess stock.
- If the first two options fail, contact a company that offers an **Obsolete Product Sourcing Service** and pray that their network of suppliers is able to find what you need.

There are no guarantees with obsolete product sourcing. Sometimes you can get lucky. In one case we were able to find enough stock to provide our customer with a component for 3 years after it went EOL.

In the end, though, Obsolete Product Sourcing is a solution for emergency situations only. It is best to prevent the emergency altogether.



## About The Author

Kevin Luckman is the VP of Marketing at New Era Electronics

## About New Era Electronics

New Era Electronics has served OEMs and ISVs from a wide range of industries since the year 2000.

No matter the industry, if you follow the above guide and all of the solutions provided, you should be able to navigate the minefield of computer products fairly well without ever having to get burned by a shorter-than-expected lifecycle.

Follow the conversation on industrial products long lifecycle management [#NewEraElectronicsLLM](#) or visit [www.neweraelectronics.com](http://www.neweraelectronics.com)

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