SunDog: Resurrected Legacy

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Contents

0.1   Overview

The original SunDog: Frozen Legacy was a critically acclaimed space trading game written for the Apple II and Atari ST line of computers in the early to mid 1980's. The game centers on a young man, Zed, who inherits his uncle's battered and beaten space ship the SunDog. Unfortunately for Zed, his uncle has an outstanding contract which needs to be fulfilled before clear title to the ship can be had.

The contract that Zed needs to fulfill is a tall order. His uncle has made a deal to deliver goods to a shadowy religious group which is building a colony on the planet Jondd. The game begins with Zed onboard the SunDog without knowing the location of the colony, little money and not much else. If Zed is going to keep the SunDog, he's going to have to learn a lot, quickly.

SunDog: Resurrection will refresh Frozen Legacy and give it a more modern look and appearance. The original SunDog had a unique feel and depth of gameplay which was unprecedented in the early 1980s.
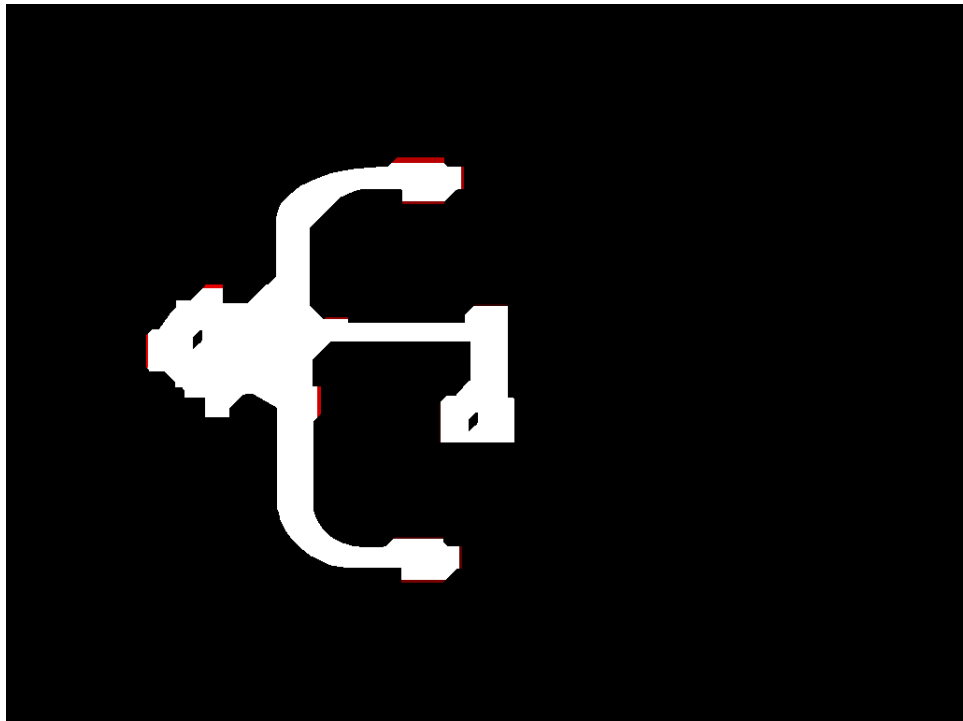
0.2   SunDog Interior
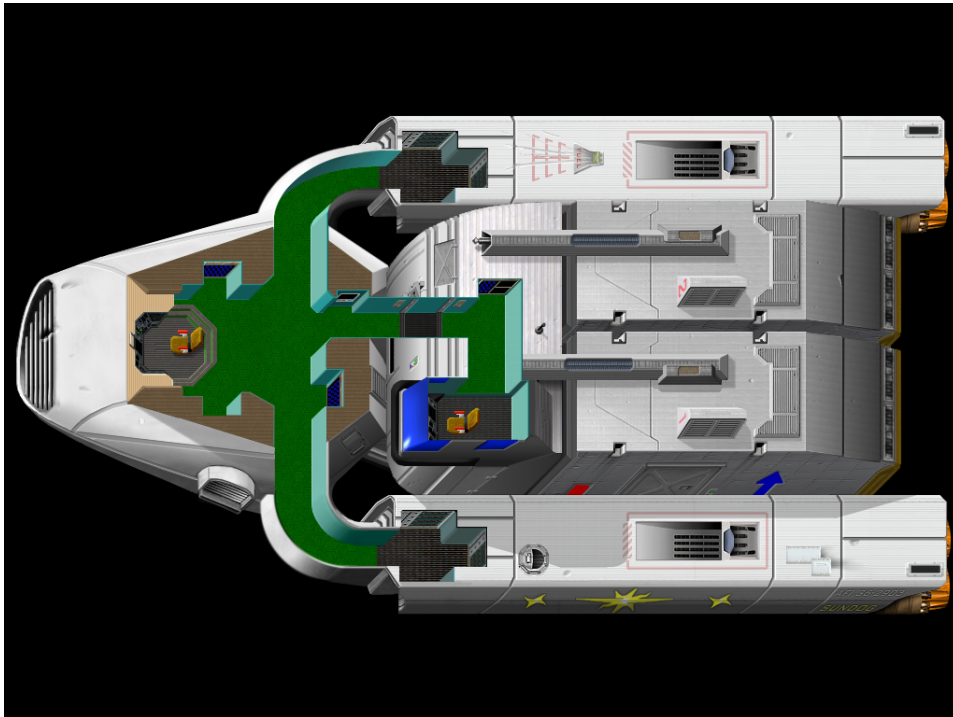
TODO:

- add sundog interior image without the pod

0.2.1   Collision Detection

0.2.2   Cockpit

The cockpit of the SunDog is the command center for the entire ship. At first the cockpit, like that of an airplane, can look like a fairly daunting place, however, the controls are grossly simplified and should be fairly easy to figure out.

Comm

The Comm system is used for ship-to-ship communications.

In an emergency, the distress call button can be used by clicking on the distress button, which will then illuminate the button and call for help.

Indicator or Button	Active	Inactive
Distress		

Open Items:

- How does the Comm work? Do we want to do something similar to the original SDFL? Do we want to use buttons?

- What's the response time for distress calls? Is it different depending on what system the ship is in (presumably some random value which interacts with the lawlessness value)?

- What happens when the distress call is answered? Is a ship dispatched or the police just call and have a conversation? Can we show multiple conversations on the Comm display? the cursor up similar to the sliders?

- Do we want the ship's radio to be controller through here or some other way (key combinations?)

Tactical

The tactical panel controls the weapons and shields systems of the SunDog. Arming the tactical controls can be done by toggling either the "Master Arm" button, or the "Nav/Tac" button just below the HUD. Tactical mode can only be entered when the SunDog is in space.

In tactical mode, the ship will yaw or pitch along with the mouse. If the mouse moves up, the nose of the ship will pitch down, and conversely if the mouse moves down, the nose of the ship will pitch up. If the mouse is moved to the left or right, it will yaw the SunDog in either of those directions. The further the mouse is moved, the more the ship will pitch or yaw. The ship will continue to move in the same direction until the reverse action is done (there is no friction in space!). If the ship is pitching upward, the mouse must be moved upward to pitch the nose down.

The "Weapons Sel" button toggles between the ships cannon and its laser, which is displayed on the HUD.

When the "Reticle Sel" button is pressed the reticle on the HUD will illuminate and stay lit for 3 seconds. If the button is pressed again before the reticle disappears, it will cycle to the next reticle in the sequence. The time that the reticle stays illuminated will be reset to 3 seconds.

The "Gun" status indicator shows the charge of the currently selected weapon system. A "peak" mark will be displayed at the highest amount the guns can charge to. The guns status indicator will normally be in green, however if concentrators are used the value can go past 100%. In this case, values above 100% will be shown as a secondary bar in red which overlaps the primary bar.

The "SHLD" status indicator shows the current charge of the shields and the SHIELDS slider bar can be moved to turn on a dynamic amount of shield power. A "peak" mark will be displayed at the highest amount the shields can charge to, which the shields will not charge past even if the slider is set higher.

Art Assets:

Indicator or Button	Active	Inactive	Misc
Master Arm	🔴	🔴	
Weapon Sel	🔵	🔵	
Reticle Sel	🔵	🔵	
Shields			▬
Gun Gauge	(255, 0, 0, 255)		
Shield Gauge	(255, 0, 255, 255)		

Open Items:

- We need to include a table of reticles that the user can cycle through.

- How do we show the charge in the GUN indicator if the user is using concentrators and the charge can be more than 100even if one gun row is offline the system can charge to 100are being used on the other 3 rows.

- If the shields can only work at a reduced efficiency, do they still take the same amount of fuel to run as they would if they were 100%?

- The buttons are somewhat small, so do we want it to toggle them when a user clicks on the writing as well as the button?

Cargo

Sometimes during ship to ship fighting it becomes necessary to jettison cargo. The "BAY 1" and "BAY 2" status lights are illuminated green (0, 255, 0, 255) whenever cargo is present in its respective bay. To eject cargo, the "Jettison Enable" button must be toggled to the on position, which will illuminate the "Jettison Select" buttons for whichever bay currently has cargo.

After pushing a "Jettison Select" button, the cargo bay light will no longer be illuminated and the jettison select button will become inactive. The indicator light should fade from green to black in 1/4 of a second.

Art Assets:

Indicator or Button	Active	Inactive	Notes
Enable Button	🔴	🔴	
Jettison Select	🔴	🔴	
Bay Lights	(0, 255, 0, 255)		The indicator should fade in or out whenever cargo is ejected or picked up (usually by the tractor beam)

Open Items:

- Do we want the status light to fade out or just go

Heads Up Display

The heads up display is the main tactical viewport of the Sun Dog. When tactical mode is activated, the HUD will illuminate its center reticle and the tracking circles for fighting enemy ships. In addition, tracking information is display in the lower portion of the view port and the weapon selected will be displayed in the upper left hand corner.

Open Issues:

- The Guns/Shields indicators are redundant to the ones on the dash board. Do we need to show them in two places?

- Does the red alert light stay on or does it flash? Should this be drawn programatically or should we use an image?

- Do we need to show the Z coordinate along with X and Y of attacking ships?

- Do we want to use the fancy warp effects that we had for the 2D game?

- The reticle depicted has an extra line which appears to point toward where the attacking ship is. Do we want a reticle that can do this?

Below the HUD is the red alert indicator which should activate when the SunDog is under attack.

A chronometer with the current game time is displayed underneath the red alert indicator and a pulsing strip surrounds it which signals that the ships Sub-C engines are currently activated.

Open Issues:

- How does the COMM indicator work?

- When does the MASTER CAUTION indicator come on? When tactical mode is activated?

- Is it the THREAT LOCK indicator or the THREAT and LOCK indicators, and when are they activated? Is this when the enemy locks onto the SunDog or when the SunDog is using something like the autoslew part?

- What does the PROX indicator do?

Primary Flight Display

Open Issues:

- Need to mock up the various screens for how this is going to work.

Computer

Open Issues:
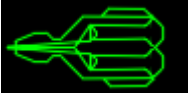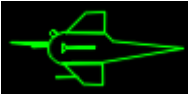
- There should be some way of changing ship settings such as yaw vs. roll.

- There needs to be an option to tractor beam in cargo after destroying an enemy vessel.

- We need to mock up the various situations for what menu items will show up in the computer. Also, does the tactical mode make sense?

- Was the Nav/Tac button above the computer supposed to change modes of the computer or was it supposed to automatically put the SunDog into tactical mode?

IFF

When the SunDog comes across another vessel or object in space, the ship's onboard IFF system will display information about the object.

Art Assets:

Ship or Visual	Image
Angolith MK-V	
Annihilator	
Cryn MK-90	
Cryn MK-110	
Cryn MK-140	
Death Angel MK-2	
Debris Field	
Jammed Signal	
Kolum 8820	
Life Pod	
Gorathi M5	
Phantom UL	
Probe	
Rathain M1	
Rathain M5	
Rynroth-VOR	
Shath Class 3	
Skryth MK-IV	
Skryth MK-VII	
Sorth CF-50	
Space Station	
Space Station	
Unknown Enlie	
Valshur 85	
Valshur 130	
Vestar Class II	
Volton MK-IV	
Volton MK-X	
VW 69	
Z1 - Vector	

Open Issues:

- IFF ident buttons are to be removed.

- Fill in the rest of the wireframes.

- Are certain ships more likely in certain places with less lawlessness?

- What are the different capabilities of each of the ships?

- It would be nice to do a rotating wireframe of each ship.

- We need to have corresponding 3D models to each of the ship outlines.

Engine

Open Issues:

- Remove the engine start button.

- The warp charge entry needs to be changed to the successful warp probability meter.

Fuel Control

Fuel control shows the current fuel drain on the ship, and allows the player to decide whether to draw fuel from an auxillary fuel pod, or from the ship's fuel tanks. Fuel drain is calculated at in "Units Per Minute" for each of the ships systems.

The "Ship/Aux" button in the fuel control panel will default to being illuminated. If there is an auxillary fuel pod onboard, pressing "Ship/Aux" or "Aux/Ship" will cause whichever button was pressed to be illuminated and the other button to be inactive. Otherwise "Ship/Aux" will always be active. Fuel will drain from whichever supply is selected until it runs out, at which point it will start to drain from the other supply.

When fuel runs out, all systems except the Comm will be inoperative and the "Systems Offline" and "Low Fuel" indicators will become illuminated.

Fuel Consumption Rates:

Ship System	Rate
Cannon/Laser	10/minute
Guns Idle	2/minute
Shields	20/minute while charging
Shields Idle	2/minute
Sub-C	35/minute
Warp	45/minute while charging
Warp Idle	2/minute
Cloaker	80/minute
Decloaker	50/minute
Idle Consumption	1/minute

Open Issues:

- If the "AUX/SHIP" button is pushed when there is no auxillary fuel pod, is there still a sound emitted?

- How do we want to handle refueling? Will the systems automatically all come back online?

- Should there be fuel drain for systems which are not working at peak efficiency? This could be a huge gameplay issue since it could make combat too difficult if parts are popping in the middle of combat which causes fuel drain to increase.

EPU System

The Emergency Power Unit is a system of last resort for powering the SunDog to quickly get to a particular place, at the cost of running out of all remaining fuel.

Open Issues:

- Remove the EPU from the cockpit.

Indicators

The system indicators are broken down in to several catagories, namely condition events, offline systems, hull status and system status.

Each row of every system will be displayed as a green, yellow or red indicator in the system status window depending on their status. An offline row (one with a broken or missing part) will not be illuminated. If all rows are offline, the functionality of that system is considered offline and a red indicator light will illuminate in the "Systems Offline" indicator panel.

The "FUEL LOW" indicator is illuminated when there are only 200 units of fuel left total (from both the main tank and the aux tank).

The "HULL" inidcator shows the current state of the hull up to 100Between 95-100%, the indicator will be green (0, 255, 0, 255), yellow between 30-94%, otherwise red. If the hull gets to 0%, the space ship is destroyed.

Open Issues:

- When does an "OVERHEAT" event happen? From the ships guns? After how many times would that happen from firing?

- When would life support be compromised? How long until the player dies? Do we even need a concept of life support?

- What does it mean when there is a hull breach? Can the hull be breached only when the hull meter is at zero?

- What does the cabin pressure light do? Is this redundant to the hull breach indicator?

- What does a radiation event do? Is that when there is a problem with a ships system or is it when the SunDog flies too close to the sun? Do we need this option?

- In the mockup it says "FORCE" instead of "SHLDS" for the system offline indicator. Do we care about this (maybe we leave it as a cute quirk)?

- We

- How does hull indicator work? Should it be different colours depending on how damaged the hull is?

0.2.3   System Bays

The SunDog contains a number of system bays which control various aspects of the ships' functionality. Each of the bays require certain parts which are necessary for the smooth operation of each individual system. From time to time, various parts will wear out or will become inoperative during certain high stress times such as ship-to-ship combat. If enough parts of a particular system have been damaged, the system will go offline and will have to be repaired. This can create some potentially difficult situations if the SunDog is engaged in combat and systems like shields or guns become inoperative. It is highly beneficial to have an extra supply of parts in case things go wrong!
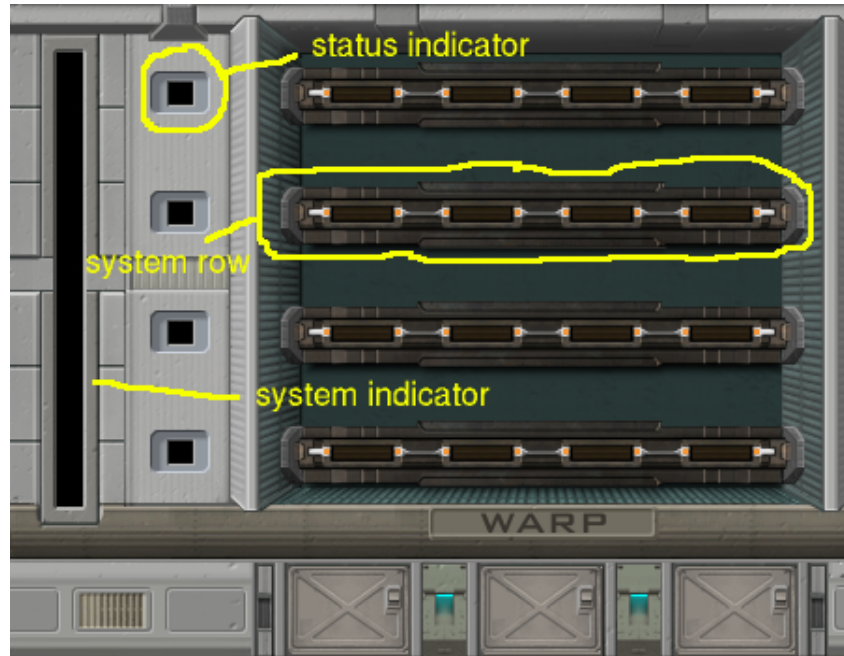
Each system bay contains four rows of parts, and each row can take a combination of parts which is unique to that system bay. Each row of parts contributes 1/4 of the capability of a given system and all parts in a given row need to be functioning for the row to work.

System parts are modular and can be plugged in to any slot that accepts the same part. Most slots can also take a "shunt", which is a universal part which will allow the row to function, but in a reduced capacity. Shunts also have an uncanny ability to fail when they are most needed, so the use of shunts should probably be avoided unless necessary.

A status row next to each system row indicates the current performance of that row. A green light indicates that the row is operating at 100% capacity. If a shunt is used for any part in the row, the row will operate at 76% capacity and the inidicator light will be yellow. If more than one shunt is used in the row, the indicator light will be red and the row output will be 48% for two shunts and 24% for three shunts.

Pilotage

Slot 1	Slot 2	Slot 3	Slot 4
Control Node	J-Junc Module Shunt	Scanner Shunt Ground Scanner	J-Junc Module Shunt

Open Issues:

- What functionality does pilotage give the ship?

Guns

Slot 1	Slot 2	Slot 3	Slot 4
Control Node	Cryo Fuse Shunt Cloaker	Photon Bridge Shunt	Plasma Tube Shunt

The gun bay controls the operation of the cannon and laser systems aboard the SunDog. Without working guns the SunDog it is impossible to strike back at attacking ships during ship-to-ship combat.

Open Issues:

- To what degree will the efficiency of the guns systems affect combat effectiveness?

- Is the laser weaker in the case that the system is not running at peak efficiency? Presumably no but it will take longer to charge – the charge can determine the damage to the other ship.

- Is the cannon weaker? Does it take more fuel to fire?

Shields

Slot 1	Slot 2	Slot 3	Slot 4
Control Node	Cryo Fuse Shunt Cloaker	Flux Modulator Shunt	Flux Modulator Shunt

The shields system controls the ships shields which prevent damage to the hull and system parts when the SunDog is under attack. Without properly working shields the SunDog will become damaged very quickly if it takes a direct hit from enemy cannon or laser fire.

Open Issues:

- How does the shield efficiency affect the operation of the shields? Presumably the efficiency determines the percentage to what the shields can be raised to: ie. 100% efficiency and the shields can be raised 100%. With shields at 25%, they could only be raised 25%.

- How does the shield efficiency determine the rate of damage?

Sub-C

Slot 1	Slot 2	Slot 3	Slot 4
Control Node	Flux Modulator Shunt	ST Distorter Shunt	Cryo Fuse Shunt

Open Issues:

- Is the sub-light speed directly proportional to the efficiency of the engines? ie. if the system is at 75% capacity, will it take 133% as much time to arrive as it would if the engines were working at 100%?

Tactical

Slot 1	Slot 2	Slot 3	Slot 4
Control Node	Scanner Shunt	J-Junc Module Shunt	Photon Bridge Shunt

Open Issues:

- Presumably tactical would adversely affect the way the thrusters work when maneuvering during combat. Is there any other affect?

Warp

Slot 1	Slot 2	Slot 3	Slot 4
Control Node	Flux Modulator Shunt	Photon Bridge Shunt	ST Distorter Shunt

Open Issues:

- Do the warp engines only determine the distance that the SunDog can jump? ie. if you have only one system row working, can the SunDog only jump 1/4 the distance?

0.3 Parts

Part	Icon	Base Price	Base Tech
Control Node			
Flux Modulator			
Photon Bridge			
ST Distorter			
Cryofuse			
Plasma Tube			
Scanner			
J Junc Module			

Control Node

The SunDog needs control nodes to function correctly. Control nodes are used in each system row in each system bay and can not be shunted, so it's necessary to have a reasonable amount of them on hand to keep the ship running smoothly.

Flux Modulator

Flux Modulators are used with the shields, sub-c engines and warp drives.

Photon Bridge

Photon bridges are used with tactical and the warp engines.

ST Distorter

Space/time distorters (ST Distorters) are used only with the warp and sub-light (sub-c) engines.

Cryofuse

Open Issues:

- What exactly is a cryofuse? Cryogenics fuse? Some kind of cold part?

Plasma Tube

Plasma tubes are used as part of the cannon and laser systems aboard the SunDog.

Scanner

J Junc Module

Shunt

0.3.1   Special Parts

A number special parts can be added to the Sun Dog to give it extra capabilities.

Part	Icon	Base Price	Base Tech
Ground Scanner			
Cloaker			
Decloaker			
Concentrator Booster		200,000	Only found in Banville

Open Issues:

- Do we want to have an auto-slew like the Apple II version?

- Is there an image for the booster?

Ground Scanner

The ground scanner gives the SunDog the capability to land at any city on any planet, regardless of whether there is a space port located in the city or not. This capability works both from orbit, and for city-to-city flights so that the ship does not have to leave the planet's atmosphere (useful when wanting to avoid pirates).

Cloaker

The cloaker can be used to disguise the SunDog from its enemies. This allows the ship to evade cannon and laser fire from attacking ships until the SunDog can land or warp to a different solar system. Using the cloaker drains a tremendous amount of fuel and will automatically shut off if there is not enough fuel remaining to power it.

Open Issues:

- What is the rate of fuel drain for using the cloaker?

Decloaker

Concentrator

The concentrator allows the cannon and laser weapons to inflict more damage than the standard system.

Open Issues:

- Is there a fuel penalty for using the concentrator?

Booster

The booster allows the SunDog to warp further distances than it normally can travel. This is the only way the ship can make it to Enlie in order to pick up the remaining cryogens to complete Phase 9 of Banville (see the Banville section).

Open Issues:

- When does the booster become available?

0.4 Banville

Generally speaking, SunDog is a non-linear game which allows a player to explore its universe any way they choose. There is, however, an end-game objective, which is to fulfill the contract that Zed's uncle had taken to complete the colony of Banville.

The contract requires the delivery of a number of goods in phases (nine in total) to a depot in Banville. Each phase has a shopping list of specific goods that will need to be purchased and delivered. The colony also requires the delivery of cryogens which have been left in different depots of various planets that need to be collected in order to complete the phase. Once all of the required items have been collected, the next phase will begin and the colony's map size will increase.

1. Phase 1

   - Fruits /Vegetables
   - Grains /Cereals
   - Seeds /Sprouts
   - Stock Embryos
   - Bulk Plastics

2. Phase 2

   - Meats
   - Spices /Herbs
   - Sunsuns
   - Wood /Fibers
   - Bulk Metals
   - Cryogens x 2

3. Phase 3

   - Food
   - Comgear
   - Synthesizers
   - Computers
   - Bulk Textiles
   - Cryogens x 4

4. Phase 4

   - Cadcams
   - Bulk Synthetics

- Grains /Cereals
- Nullgravs
- Silichips
- Spices /Herbs
- Cryogens

5. Phase 5

   - Clothing
   - Droids
   - Fruits /Vegetables
   - Meats
   - Pharmaceuticals
   - Cryogens x 2

6. Phase 6

   - Gold
   - Hand Weapons
   - Silichips
   - Sunsuns
   - Solar Cells
   - Cryogens x 3

7. Phase 7

   - Biochips
   - Fruits /Vegetables
   - Gems /Crystals
   - Organics
   - Silichips
   - Stimulants
   - Polyglass
   - Cryogens x 2

8. Phase 8

   - Clothing
   - Biochips
   - Pharmaceuticals
   - Radioactives

- Rare Earths
- Synthetic Stem Cells
- Synthesizers
- Medical Equipment
- Cryogens x 2

9. Phase 9

- Robotics
- Antimatter
- Art Objects
- Centrifuges
- Droids
- Exotic Metals
- Furs /Silks
- Radioactives
- Cryogens

Open Items:

- Where does the player buy the booster? In a bar or in the equipment shop?

- When is the booster available? After Phase 8?